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Tackling Educational Inequalities with Social Psychology: Identities, Contexts, and Interventions

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Some groups of students—typically those who have suffered because of historical inequality in society—disproportionately experience psychological barriers to educational success. These psychological barriers—feelings of threat to their social identity and the sense that their identity is incompatible with educational success—make substantial contributions to inequalities in educational outcomes between groups, even beyond economic, historical, and structural inequalities. A range of wise *psychological interventions can help remove these barriers by targeting students' subjective interpretation of their local educational context. In this review, we outline the* Identities in Context *model of educational inequalities, which proposes that interactions between students' social identities and features of the local educational context—expectations about a group's academic performance, a group's representation in positions associated with academic success, and a group's orientation towards education—can trigger social identity threat and identity incompatibility in ways that vary considerably across contexts. We present an implementation process, based on the* Identities in Context *model, that academic researchers, policymakers, and practitioners can follow to help them choose and tailor wise interventions that are effective in reducing educational inequalities in their local context. Throughout the review, we make policy recommendations regarding how educational practices can be altered to help remove psychological barriers for underperforming groups of students and so reduce educational inequalities.*

Some groups of students—such as some ethnic minorities or those from lower class backgrounds—on average achieve much lower academic grades and

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are much less likely to progress within the education system than other groups. In both the United States and England, for example, it is estimated that the attainment of high-school students from low-income households lags behind that of their counterparts from higher income households by the equivalent of more than two and a half years of schooling.[1] There is a similarly large attainment gap between Black and White high-school students in the United States (Department for Education, 2020; Nation's Report Card, 2019). Extensive efforts to close such gaps, such as the £2.4 billion per annum Pupil Premium initiative in England (Foster & Long, 2020), have been a major focus of educational policy but have met with only limited success.

Education is a key predictor of life outcomes (Hout & DiPrete, 2006), including physical health (Schütte, Chastang, Parent Thirion, Vermeylen, & Niedhammer, 2013), mental health (von dem Knesebeck, Pattyn, & Bracke, 2011), subjective well-being (Blanchflower & Oswald, 2000), life expectancy (Meara, Richards, & Cutler, 2008), trust (Easterbrook, Kuppens, & Manstead, 2015), and income (Britton, Dearden, Erve, & Waltmann, 2020; Card, 1999). Those with higher qualifications are also more engaged in politics and are more likely to vote, giving them a louder political voice (Bynner & Ashford, 1994; Helliwell & Putnam, 2007; Persson, 2013; Stubager, 2008). This means that there are important economic, social, and moral reasons for attempting to remove or dampen any forces that damage educational outcomes for certain groups of students.

Structural barriers, such as differences in access to high-quality schools, together with institutional biases against certain groups of students, are the most fundamental drivers of educational inequalities and must be tackled if we want to reduce inequalities in educational outcomes. However, there are also psychological barriers to educational success that solely or disproportionately affect some groups of students and thus contribute to educational inequalities. These psychological barriers are often the consequences of cues within local educational contexts that signal to some groups—usually those with low status that have suffered from inequality in wider society—that they are not valued in educational institutions, are likely to fail at their studies, and are unlikely to reap any benefits from pursuing an education. This can cause members of those groups to feel alienated, uncomfortable, discouraged, and demotivated, impeding their engagement, persistence, progress, and performance within education (Easterbrook, Hadden, & Nieuwenhuis, 2019). These psychological barriers can therefore account for a substantial proportion of the differences in educational attainment between groups (Walton & Yeager, 2020). The first aim of this review is to provide an accessible overview of these psychological barriers that contribute to educational inequalities between groups.

[1] See a later footnote for how these estimates are calculated.

Fortunately, social psychological interventions can be incredibly effective at helping remove those psychological barriers and so narrowing educational inequalities, especially attainment gaps. The interventions, which are often brief, subtle, and ostensibly simple, target the internal subjective experiences of certain students, altering their interpretations of the local context and/or their place within it. This can transform students' whole education experience from one of fear, threat, disengagement and alienation, to one of security, trust, and opportunity.

Yet, such interventions must be used with care since they can be ineffective or even counterproductive to some groups. This can happen if those groups are not affected by psychological factors that dampen their educational performance, or if the interventions are not appropriately designed or effectively implemented in sustaining contexts (Bayly & Bumpus, 2020; Binning & Browman, 2020; Borman, 2017; Walton & Yeager, 2020). It is therefore critical to intervene only in contexts in which psychological factors contribute to educational inequalities, and in which social psychological interventions are likely to be effective, sustained, and unlikely to create unintended negative consequences.

Our second, and most important, aim is to demonstrate that, in order to understand educational inequalities and to effectively and efficiently reduce them, we must first gain a deep understanding of the local educational context, because it is features of those contexts that create the psychological barriers faced by some groups of students. To achieve this aim, we present a framework—called the *Identities in Context* model of educational inequalities (Easterbrook et al., 2019)—for understanding the specific ways in which local contexts create these psychological barriers for certain groups of students.

The third and final aim of this review is to demonstrate the power of psychological interventions—*when implemented within the appropriate context*—to remove the psychological barriers to educational success that some students face, and to highlight their potential to play an important role in reducing educational inequalities. We outline a process that practitioners could adopt to build up a deep understanding of the local educational context and to identify which, if any, psychological intervention may be effective at reducing educational inequalities.

Inequalities in Educational Outcomes Vary by Context

The groups that tend to have poor educational outcomes vary across contexts, implying that context plays a role in determining the extent and focus of educational inequalities between groups. For example, although the gaps in attainment between low- and higher socioeconomic status (SES) students are of a similar

size in both the United States and England[2]—the equivalent of more than two and a half years of schooling—the gaps in attainment between Black students and White students are very different: in the United States, Black students lag their White counterparts by over two and a half years of schooling, whereas in England the corresponding lag is only around 3 months.

If we probe a little more deeply, we discover more differences between the countries. Categorizing students into broad groups such as Black and White can hide inequalities between smaller subgroups. For example, the small average attainment gap between White and Black school students in England conceals the fact that Black students from a Caribbean background have much lower attainment than Black students from an African background. Furthermore, inequalities between some groups can vary considerably depending on their members' other group memberships. For example, the effect of SES on attainment in England varies between ethnic subgroups by a factor of up to nearly three[3] (Department for Education, 2020).

Attainment gaps also vary considerably in size and even direction across smaller geographical areas within countries, suggesting local contexts can color students' educational experiences as well. In England, for example, one measure of the attainment gap at age 16[4] between students who are classified as "disadvantaged" due to low household income and all other students is 12.8 points nationally. However, this varies considerably across areas of local Government, from five points (in Tower Hamlets) to 24 (in Blackpool), a range of almost one and a half standard deviations (Department for Education, 2019). Similarly,

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[2] The estimates presented here are based on means of the scores in mathematics and reading of US 14-year-old students (Nation's Report Card, 2019), and Attainment 8 scores (a measure of a broad range of examinations taken at the end of compulsory schooling) of English 16-year-old students (Department for Education, 2020a). We first calculated standardized attainment gaps by SES, gender, and ethnicity by dividing by the relevant standard deviation. We then converted these standardized attainment gaps into estimated years of education, based on an estimate of the growth in attainment that occurs in one school year in the life of an average student in the United States averaged across mathematics, reading, science, and social studies (see Table 5 of Lipsey et al., 2012). We took the mean of these growths from Grade 7 to 8 (age 13 to 14, 0.27 standard deviations) and from Grade 9 to 10 (age 15 to 16, 0.21 standard deviations) to yield an estimate that a year of schooling is equivalent to 0.24 standard deviations. However, other estimates of annual growth in attainment (e.g., Education Endowment Foundation, 2018; LoGerfo, Nichols, & Reardon, 2006) and attainment gaps (e.g., Hutchinson, Bonetti, Crenna-Jennings, & Akhal, 2019; Perera, Treadaway, & Johnes, 2016) have been calculated that are substantially different to the estimates here and so our estimates should be regarded as indicative of broad trends rather than as precise estimates.

[3] In England, the major ethnic subgroups with the largest gaps in attainment between low-SES and higher-SES students (White British, and mixed White and Asian, each of which has an SES gap of 3.4 years of education) have gaps that are almost three times that of those groups with the smallest gaps (Bangladeshi, Pakistani, and Black African students, each of which has an SES gap of 1.1–1.3 years of education).

[4] This is the gap in Attainment 8 scores, a measure of students' best eight grades in General Certificate of Secondary Education (GCSE) national exams in a range of subjects taken at age 16. The mean Attainment 8 score in 2019 was 46.7 with a standard deviation of 20.3.

although there is a small average attainment gap between Black and White students in England, the size of the gaps at local levels vary significantly, from −25 to +20, a range of more than two standard deviations.

Attainment gaps between immigrants and nonimmigrants also vary drastically across contexts. On average, across countries belonging to the Organisation for Economic Co-operation and Development (OECD), nonimmigrant students tend to have slightly better PISA[5] scores than second-generation immigrant students, who in turn have slightly better scores than first-generation immigrant students (OECD, 2015). However, these gaps vary considerably by nation, with particularly marked differences in some (e.g., the Nordic countries, Belgium, Switzerland, Germany, the Netherlands, France, Iceland, China, and Mexico) and much smaller—or even reversed—differences in others (e.g., the United States, United Kingdom, Chile, New Zealand, Israel, and Ireland). The psychological experiences of immigrants and nonimmigrants in education may, then, be quite different.

The experience and thus performance of different groups of students also depends on the subject that they are studying. Take science, technology, engineering, and mathematics (STEM) subjects, which are of particular concern to policymakers given shortfalls of skilled labor in the workforce (Broughton, 2013; Chen & Soldner, 2014; Neave et al., 2018). These shortfalls are exacerbated by particularly low representation of women, some ethnic groups and low-SES individuals in many STEM fields, most notably the physical sciences, engineering, maths, and computing. In the United States, for example, Blacks make up 13% of the population and receive 10% of bachelor's degrees but only 4% of engineering bachelor's degrees (National Science Board, 2019), and while first-generation students are somewhat less likely than continuing-generation students to complete college with a degree in any subject (57% vs. 65%), the effect is significantly more pronounced with STEM degrees (9% vs. 15%)[6] (Bettencourt, Manly, Kimball, & Wells, 2020). In the United Kingdom, compared to 58% of graduates in all subjects (Higher Education Statistics Agency, 2020), only 15% of graduates in engineering, technology, and computer science, and only 12% of those working in engineering occupations are women (Neave et al., 2018; STEM Women, 2020).

Psychological Barriers Contribute to Educational Inequalities

Structural barriers are the most fundamental drivers of educational inequalities. Differences in access to high-quality schools (Allen, Mian, & Sims, 2016; Burgess, Greaves, & Vignoles, 2020), adequate housing (Equality Trust, 2016;

[5] PISA is the OECD's Program for International Student Assessment (PISA). PISA measures 15-year-olds' ability in reading, mathematics, and science.

[6] Based on a nationally representative sample of both 2- and 4-year college students.

Krivo & Kaufman, 2004; Ofsted, 2013), private tuition (Jerrim, 2017), and healthy nutrition (Ofsted, 2013; Wilder Research, 2014)—to name just a few factors—all contribute substantially to attainment gaps and other educational inequalities. Furthermore, institutional biases that discriminate against certain groups of students also contribute to inequalities in educational outcomes, most notably through biases that manifest in academic tracking allocations, academic assessment and disciplinary practices, and expectations about the behavior and academic performance of different groups (Butera, Batruch, Autin, Mugny, & Quiamzade, 2021). We explore these biases later in this paper.

However, even beyond structural inequalities and institutional biases, psychological factors can also contribute to inequalities in educational outcomes between groups. When they do, they tend to solely or disproportionately affect members of groups that have low status and are thus already disadvantaged within wider society. The psychological factors that we focus on in this review reflect the subjective experience and perceptions of poorly performing groups of students. These are determined in part by their understanding of the content, meaning, and value of their *social identities*—their identities based on their memberships of groups and social categories—in the context they are in (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). We argue that, in particular social and cultural contexts, some students will experience social identity threat—a fear or feeling that their social identity is devalued, undermined, or stigmatized[7]—and perceive identity incompatibility—a perception that their social identity is not compatible with the identity or stereotype of someone who does well in and benefits from education. All these factors mean that key outcome measures—most notably academic performance in standardized exams—are not based solely on merit but are systematically biased against certain groups of students (Walton, Spencer, & Erman, 2013).

Feeling that one's social identity is devalued or stigmatized and thus experiencing social identity threat is a powerful aversive force that is easily ignited and can color people's entire educational experience (Inzlicht, Tullett, Legault, & Kang, 2011; S. J. Spencer, Logel, & Davies, 2016; Thoman, Smith, Brown, Chase, & Lee, 2013; Walton et al., 2013). A specific case of social identity threat is stereotype threat—an aversive state brought on by the knowledge that one's behavior may confirm a negative stereotype about a group one is a member of. This—like social identity threat more generally—increases anxiety and worry and uses up precious cognitive resources that would otherwise be dedicated to performance (Inzlicht et al., 2011; S. J. Spencer et al., 2016; Walton & Spencer, 2009).

[7] We focus here on social identity threat that reflects a threat to the value of the social identity, rather than on other types of social identity threat that have been identified (Branscombe, Ellemers, Spears, & Doosje, 1999).

Certain group members are also likely to hold perceptions of identity incompatibility, a perceived misfit or *incompatibility* between their social identity and their stereotypical beliefs about what people who do well in education are like. The meaning and content of some social identities—such as White, middle-class students—overlap and are thus *compatible* with the social stereotype of high academic achievers. Others, however—such as some ethnic minorities and students from lower social classes—are seen as *incompatible* with those stereotypes. These students often believe that striving and succeeding in education is unlikely to be rewarding for *people like them*, and is thus not something that is a worthwhile endeavor for members of their group (Dasgupta, 2011; Elmore & Oyserman, 2012; Oyserman, Bybee, & Terry, 2006, 2011).

Most experimental studies on threat and incompatibility bring students' social identities—and thus their experiences of social identity threat and perceptions of identity incompatibility—to the forefront of their minds by asking a seemingly innocuous question about group membership, of the kind that students may frequently be asked to answer during their education. For example, one study, conducted in the United States, found that simply asking students to report their ethnicity before (rather than after) assessing their belonging in school—thus bringing their ethnic social identity to the forefront of their minds—reduced feelings of belonging *only* among members of poorly performing ethnic minorities (Mello, Mallett, Andretta, & Worrell, 2010). This suggests that it was something about being a member of a poorly performing minority that *caused* those students to feel that they did not belong in school, a consequence of social identity threat (Cohen & Garcia, 2008) that is strongly associated with academic performance (Anderman, 2003; Easterbrook, Harris, & Sherman, 2020a; Roeser, Midgley, & Urdan, 1996). Another study found that asking college students in the United States about their SES before (rather than after) an intelligence test reduced lower class students' confidence in their academic ability and their performance (B. Spencer & Castano, 2007), suggesting that it was something about the knowledge that they are lower class that *caused* these students to have less confidence and to perform worse. As we elaborate on below, we suggest that features of the local context determine the meaning of different social identities, which accounts for why the detrimental effects of priming social identities found in these studies were limited to members of groups that had low status in those contexts.

Other studies have found that bringing the social identities and/or the stereotypes of students of certain (typically low-status) groups to mind can reduce their ability and desire to learn (Lyons, Simms, Begolli, & Richland, 2018; V. J. Taylor & Walton, 2011), their motivation and persistence on academic tasks (Steele & Aronson, 1995) and, even among high achievers, their commitment to their studies and intentions to pursue related careers (Bedyńska, Krejtz, & Sedek, 2019, 2020; Deemer, Lin, & Soto, 2016; Smith, Brown, Thoman, & Deemer, 2015; Woodcock, Hernandez, Estrada, & Schultz, 2012). Measures of social identity

threat and a perception of identity incompatibility have been found to be significantly related to the ranking of universities to which working-class college students in the United Kingdom apply, suggesting they are part of the reason why such students apply to lower ranked universities than their grades warrant (Nieuwenhuis, Manstead, & Easterbrook, 2019).

Although social identity threat and identity incompatibility have a range of consequences on educational outcomes, the most well-documented is on academic performance. Social identity threat and/or identity incompatibility have been found to reduce the performance of Black and Latino students in U.S. schools and colleges (Chu & Brown, 2017; Gonzales, Blanton, & Williams, 2002; Steele & Aronson, 1995); students and young children of lower social class in the United States (Désert, Préaux, & Jund, 2009; B. Spencer & Castano, 2007), France (Croizet & Claire, 1998), and Belgium (Veldman, Meeussen, & van Laar, 2019); children of immigrants in Belgium (Baysu, Celeste, Brown, Verschueren, & Phalet, 2016); women and girls in stereotypically masculine subjects such as maths and science (Ambady, Shih, Kim, & Pittinsky, 2001; Picho, Rodriguez, & Finnie, 2013; S. J. Spencer, Steele, & Quinn, 1999); and boys in general performance and in stereotypically feminine subjects such as reading, English, and languages (Hartley & Sutton, 2013; Pansu et al., 2016).[8] Indeed, estimates based on effect sizes derived from two meta-analyses incorporating data from nearly 19,000 individuals suggests that threat accounts for 17–28% of the White–Black attainment gap on SATs, 23–39% of the White-Latino SAT attainment gap, and 57–94% of the gender gap on SAT mathematics in the United States (Walton & Spencer, 2009; Walton et al., 2013).

Mechanisms by Which Social Identity Threat and Identity Incompatibility Create Barriers

Much work has investigated the internal psychological mechanisms through which social identity threat and identity incompatibility impede educational progress, engagement, and performance. These include a reduced or insecure sense of belonging (Cohen & Garcia, 2008; Nieuwenhuis et al., 2019; Rosenthal, Levy, London, Lobel, & Bazile, 2013), dampened motivation (Thoman et al., 2013) and achievement goals (Smith, 2004), increased anxiety, reduced working memory capacity (Spencer et al., 2016), depleted cognitive resources (Lyons et al., 2018), increased stress, defensive coping responses, and inhibited self-regulation (Inzlicht, Tullett, & Gutsell, 2012). We now examine two manifestations of these processes that are particularly relevant to education: students not using all the academic resources available to them, and students interpreting

[8] This list is not exhaustive but covers the majority of studies on stereotype threat. The detrimental effects of stereotype threat have also been shown in a range of domains other than education.

normal setbacks as proof that they are not the type of person that succeeds in education.

Social identity threat and identity incompatibility act as barriers to seeking out and utilizing the resources available to help students (Stephens, Hamedani, & Destin, 2014b), with consequences that are often chronic, ingrained, and long term. For example, without the aid of an intervention, first-generation university students in the United States had lower attainment than continuing-generation students over the course of an academic year, partly because they did not make use of the academic resources available to them, such as emailing and meeting with professors or seeking extra help (Stephens et al., 2014). These students tended to discuss their background less than other students while at university and showed reduced psychological thriving (Stephens, Townsend, Hamedani, Destin, & Manzo, 2015).

Students suffering from social identity threat and identity incompatibility also become sensitive and hypervigilant to signals that may indicate that their social identity is threatened, which reinforces negative effects and causes them to persist through time. This sensitivity is such that seemingly innocuous events—perhaps as simple as getting a lower grade than expected or being faced with an irritable teacher—are often interpreted as confirming one's fears and can disrupt academic performance (Murphy & Zirkel, 2015; Singh, Chang, & Dika, 2010; Sirin & Rogers-Sirin, 2005). One study, for example, found that the degree of adversity that students reported experiencing on a particular day was related to lower belonging and increased social identity threat *only* for Latino students in U.S. schools who did not take part in an intervention aimed at buffering against social identity threat (Sherman et al., 2013). Another study in U.S. schools found that feelings of belonging among Black students who did not take part in a values affirmation intervention were more variable and more strongly related to their grades than they were for other groups (Cook, Purdie-Vaughns, Garcia, & Cohen, 2012), suggesting that they were sensitive to any cues that they might not be valued within that educational context.

The above evidence emphasizes the importance of schools and colleges not inadvertently triggering social identity threat or a sense of identity incompatibility in their students. As we argue below, this involves paying close attention to the local educational context and minimizing cues or features that might ignite threat or a sense of identity incompatibility (Walton et al., 2013). There are, however, other, more direct approaches that can also be adopted to avoid triggering social identity threat and identity incompatibility. One is to explicitly explain to students through psychoeducation programs the role that social identity threat plays in reducing performance, and suggesting effective coping strategies to deal with its effects, such as emotion reappraisal, delegitimizing stereotypes, and envisioning positive role models. Such programs have been found to weaken the negative effects of stereotype threat (O'Brien et al., 2019; see also Johns, Schmader,

& Martens, 2005). Another is to actively and forcefully promote positive understandings of different groups and their educational potential by designing diverse student panels who can portray these messages to incoming students (Stephens et al., 2014b). We discuss other approaches in later sections of this review.

We now turn to psychological interventions, sometimes known as wise interventions, that can target these psychological barriers and thus reduce educational inequalities.

Wise Interventions

Traditional educational interventions such as those aimed at improving overall teaching quality or providing targeted academic or practical support (Education Endowment Foundation, 2019) have met with some success, but tend to be expensive and/or resource intensive and in many cases have only fairly modest effects (Boulay et al., 2018; Lortie-Forgues & Inglis, 2019; Yeager & Walton, 2011). For example, the U.K. Government's Pupil Premium initiative represents a major plank of the Government's objective of reducing the substantial attainment gap between school students from lower income families and their better-off peers (Foster & Long, 2020). The initiative currently costs £2.4 bn per annum, representing around £1,200 per annum for each student that it aims to support. However, in the 7 years between its inception in 2011 and 2018, the attainment gap at age 16 reduced by an encouraging but relatively modest 9.6% (Hutchinson, Bonetti, Crenna-Jennings, & Akhal, 2019), and survey results have indicated that only 39% of classroom teachers agreed that the funding was helping to close attainment gaps in their school (Sutton Trust, 2019).

In contrast, social psychological interventions—sometimes called wise interventions—that aim to reduce inequalities by targeting the subjective experiences and perceptions of underperforming groups of students, can be incredibly effective. These interventions are often very low cost, brief, and may appear unbelievably simple but, when implemented in an appropriate context to receptive students, can be extraordinarily powerful. This power comes from their ability to alter the way that students perceive, interpret, and experience their educational context, and thus to transform their whole educational experience and trigger a cascade of profound benefits that last many years.

However, as we shall see, the effectiveness of these interventions varies across contexts and for different groups to the extent that, in some cases, they can be detrimental. To be effective, the interventions must be diligently and competently implemented and completed (Borman, 2017; Borman, Grigg, Rozek, Hanselman, & Dewey, 2018; Easterbrook et al., 2020a), target the appropriate students (Binning & Browman, 2020), and be implemented in contexts that are sensitive and supportive enough to enable, sustain, and reinforce beneficial effects (Cohen, Garcia, & Goyer, 2018; Goyer et al., 2017; Walton & Wilson, 2018;

Walton & Yeager, 2020). If they are implemented without these conditions in place, they may fail or even be harmful to some (Binning & Browman, 2020; Borman, 2017). Even when these conditions are seemingly met, null effects can still occur (Borman, 2017; Hanselman, Rozek, Grigg, & Borman, 2017). In the sections below, we first discuss a number of wise interventions and how their effects vary across contexts, before discussing the practical implications of this variability and the resulting care that needs to be taken when implementing different wise interventions.

Values Affirmation Interventions

Values affirmation (a type of self-affirmation—for a review, see Cohen & Sherman, 2014), when used in educational settings, is primarily aimed at reducing attainment gaps by reducing the inimical consequences of stereotype threat. Students are asked to write one or more brief essays—usually spending no more than 15 minutes on each—in which they reflect on things that are important in their life, such as family members or sports. This can help those students who are experiencing social identity threat to see school or college within a broader perspective, as only one part of who they are. It helps bring to the fore the positive resources and identities they already have within and around them, and so lessen the salience and severity of the social identity threat. This reduces the negative consequences of the threat such as increased stress, reduced motivation or disengagement from academic life, and thus boosts attainment.

Cohen and colleagues' (2006) study was the first demonstration of the efficacy of values affirmation interventions in reducing racial educational attainment gaps in the United States. Cohen and colleagues showed that brief value affirmation exercises, administered by teachers to all students in their classrooms and implemented at several points throughout the academic year, increased the academic performance of 12–13-year-old African American U.S. middle-school students, but had no effect on European American students' performance, thus reducing the (covariate adjusted) racial achievement gap by 40%. The exercises stopped the downward trajectory in performance that African American students tended to show across the academic year and were particularly beneficial for those with low academic performance. Similar results have been found for Latino (but not White) middle-school students in the United States (Brady et al., 2016; Goyer et al., 2017; Sherman et al., 2013).

The above results were found among school students in the United States, where racial stereotypes in relation to education are particularly widespread (Gándara & Contreras, 2009; Steele, 2010). Yet, values affirmation interventions have been found to benefit other groups in different contexts. In England, with its long history of striking disparities between social classes (Evans, 2006; O. Jones, 2016), a brief values affirmation intervention has been shown to increase the

mathematics exam performance of students from low SES backgrounds, reducing the gap with their higher SES peers by a remarkable 62% (covariate adjusted; Hadden, Easterbrook, Nieuwenhuis, Fox, & Dolan, 2019). However, in contrast with the U.S. studies, it found no evidence of benefits to lower performing ethnic groups. In Germany, Arab and Turkish immigrants have considerably lower academic performance than nonimmigrants (OECD, 2015) and are subject to widely held negative stereotypes and are thus likely to suffer from stereotype threat (Lokhande & Müller, 2019). In this context, values affirmation increased the scores of school students from immigrant (but not other) backgrounds in an attainment test taken 8 weeks later (Lokhande & Müller, 2019). Moreover, value affirmations have been found to benefit first-generation scholars in U.S. colleges (Harackiewicz, Tibbetts, Canning, & Hyde, 2014), students in further education colleges in the United Kingdom (Behavioural Insights Team, 2017; Schwalbe et al., 2019), students from developing nations in massive open online courses (MOOCs) (Kizilcec, Saltarelli, Reich, & Cohen, 2017), and female students in graduate business schools (Kinias & Sim, 2016).

Furthermore, the beneficial effects of the intervention on grades have been shown to persist for at least 2 years (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Sherman et al., 2013). Remarkably, a follow-up paper showed downstream beneficial effects of the intervention on college enrollment among the students in Cohen et al.'s first study 7–9 years later (Goyer et al., 2017). This contrasts with many educational interventions, where the majority of follow-up studies have found that any short-term benefits fade over time (Bailey et al., 2016; Cascio & Staiger, 2012). Why should wise interventions be different?

Evidence points to a process known as *trigger-and-channel* as a likely explanation (Cohen et al., 2018; Goyer et al., 2017). This process is predicated on the core ability of wise interventions to tap deeply into students' subjective experiences and interpretations of their educational context (for a review, see Walton & Wilson, 2018). The changes in interpretations that these interventions trigger reduce students' sense of threat and boost their sense that they fit in the academic world, thus improving academic performance (Cook et al., 2012; Shnabel, Purdie-Vaughns, Cook, Garcia, & Cohen, 2013). Furthermore, this change initiates a set of recursive processes in which reduced threat and a greater sense of fit leads to improved performance, which leads to an even greater sense of fit, and so on.

This virtuous cycle is further strengthened as teachers and peers alter their perceptions of the students' ability, thereby raising expectations and generating support for higher levels of academic challenge (Cohen & Sherman, 2014; Rosenthal & Jacobson, 1966; Timmermans, van der Werf, & Rubie-Davies, 2019). This in turn triggers students to move from lower performing or remedial academic tracks to higher performing tracks, leading to increased self-confidence (Francis et al., 2020) and more effective preparation for admission to college (Goyer et al., 2017). Once at college, their greater sense of belonging and improved academic

performance can lead to further benefits such as stronger relationships with mentors that can last beyond the college years. And, since academic success predicts a range of important life outcomes such as health, well-being, community involvement and income, these benefits can continue well into adult life (Brady, Cohen, Jarvis, & Walton, 2020). A powerful aspect of this process is that it gains its own momentum and does not require the students to even remember any details about the initial intervention: in one study, only 8% of the participants actually remembered the key message of the intervention 3 years after it had taken place, and yet its benefits were evident a full 11 years later among the students who took part (Brady et al., 2020; Walton & Cohen, 2011).

We gain insight into the detailed working of this cascade by examining the two values affirmation interventions that were initially successful in improving the academic scores of Latino (Sherman et al., 2013) and Black (Cohen, Garcia, Apfel, & Master, 2006) middle school students in the United States, aged 11–14. A 2-year follow-up of the intervention aimed at Latino students found that, compared to nonaffirmed Latino students, affirmed Latino students were in classes whose curriculum was significantly more difficult, and were around half as likely to be placed in a remedial clinic, five times as likely to enroll in a college-readiness elective, and almost twice as likely to attend mainstream high school rather than alternatives such as attending a high school for lower performing students or dropping out[9] (Goyer et al., 2017). And a 7- to 9-year follow-up to the intervention aimed at Black students found that, compared to nonaffirmed Black students, affirmed Black students were more likely to enroll in college, and those who did enroll were more likely to do so in a 4-year rather than a 2-year college, and those 4-year colleges were more selective (Goyer et al., 2017).

Given such striking findings, it is naturally tempting to think of values affirmation interventions as a panacea for group-based educational inequalities. However, there are several reasons to be cautious about their unqualified promotion. Crucially, a number of other studies of values affirmation have shown more nuanced effects or none at all (Borman, Grigg, & Hanselman, 2016; Bowen, Wegmann, & Webber, 2013; Bratter, Rowley, & Chukhray, 2016; Dee, 2015; Hanselman et al., 2017; Hayes, Zinner, Wise, & Carton, 2019; E. O. Jones & Huey, 2020; Protzko & Aronson, 2016), and indeed some have found evidence of backfire effects for specific groups of students (Bayly & Bumpus, 2020; Brady et al., 2016; Cohen et al., 2006; Dee, 2015; Liu & Huang, 2019; Miyake et al., 2010). These findings may, in part, be due to variations in the implementation of the interventions (Borman, 2017; Easterbrook et al., 2020a), such as using online rather than written exercises (Bayly & Bumpus, 2020), presenting the exercises as part

[9] The results were substantially the same whether adjusted for baseline covariates or not. Note that there was no difference between affirmed and nonaffirmed White students on any of the measures discussed here.

of an external research study rather than something teachers want the students to complete (Protzko & Aronson, 2016), or because the school did not have a sufficiently supportive environment to sustain the effects (Dee, 2015). But they also suggest the possibility that the students that were targeted by these interventions were underperforming for reasons other than threat or incompatibility (Binning & Browman, 2020). A framework that outlines when such psychological factors are likely to contribute to inequalities in educational outcomes would therefore be a useful tool.

Two examples help to illustrate the importance of an intimate understanding of the local context in order to understand the effects of wise interventions. First, one study found that a values affirmation intervention did not benefit school students of Moroccan and Turkish backgrounds in the Netherlands, where such immigrants have low academic attainment and are subject to negative stereotypes (de Jong, Jellesma, Koomen, & de Jong, 2016). The authors speculate that values affirmation might have actually *increased* these students' sense of social identity threat, since many chose to reflect on the importance of Islam in their life, which may have emphasized their difference from mainstream Dutch society and thus have been threatening (Kamans, Gordijn, Oldenhuis, & Otten, 2009). Second, a study conducted in British further education colleges, which are attended by 16- to 19-year-olds who tend to have relatively weak academic records, found that a values affirmation intervention increased attainment in maths and English across the entire cohort, rather than only among an underrepresented or ethnic minority (Behavioural Insights Team, 2017; Schwalbe et al., 2019). This suggests that the weak academic record of the majority of students resulted in widespread experience of social identity threat and thus made values affirmation effective for the whole cohort. These differing results emphasize the importance of practitioners first developing a detailed picture of the meaning of different identities within the local context before choosing an intervention to implement, a point to which we will return later when we discuss the practical uses of the *Identities in Context* model.

Social Belonging Interventions

Social belonging interventions aim to help students who—because of social identity threat and/or identity incompatibility—are worried that they do not fit in at school or college. They achieve this by normalizing worries about belonging and helping students to become less sensitive and thus avoid interpreting everyday events as evidence that they might not belong in that context due to their ethnicity, social class, or gender. These worries can be evoked by seemingly innocuous events such as a Black student's encounter with an irritable White professor, or a middle-class teacher giving critical feedback on a low-SES school student's essay. A powerful example is a one-time hour-long exercise undertaken early in the

first year of college (Walton & Cohen, 2007). Students were first asked to read brief stories ostensibly written by more senior students from a range of ethnic backgrounds about how they initially worried about whether they belonged on campus, and how these worries lessened with time. The students were then asked if they would like to write a brief essay and create a video message to future students to relate these ideas to their own circumstances (all agreed to do at least one of these). Over the course of their 3 years at college, this intervention raised the academic performance and sense of well-being of Black students significantly more than it did for White students, in part because it helped them untether their sense of belonging at the college from the daily adversities they encountered there (Walton & Cohen, 2011). This untethering suggests that the intervention reduced students' social identity threat and thus their sensitivity to cues that may indicate they do not belong at college. However, the benefits did not end when they left college. A follow-up study assessed their outcomes as adults at average age 27, seven to 11 years after they received the intervention. Impressively, they reported significantly greater career satisfaction and success, psychological well-being, and community involvement and leadership (Brady et al., 2020). White students, in contrast, showed only small gains in these outcomes, none of which reached statistical significance. Social belonging interventions have also been shown to benefit students from ethnic minorities who were about to enter high school (Williams, Hirschi, Sublett, Hulleman, & Wilson, 2020).

A recent large-scale study found that this intervention was most effective within schools in which the threatened minority *who did not receive the intervention* experienced the greatest gains in belonging, suggesting that the intervention was most effective in contexts that afforded belonging gains (Walton et al., 2019, as cited in Walton & Yeager, 2020). We shall return to this idea later when we consider the metaphor of wise interventions as planting seeds that can grow only when the soil of the educational context is sufficiently supportive (Walton & Yeager, 2020), a perspective that we completely endorse and aim to complement with our work.

Difference-Education Interventions

Difference-education interventions are aimed at addressing mismatches between the cultural norms of low-SES first-year students and their new college (for background, see Stephens, Hamedani, & Townsend, 2019). Educational institutions tend to promote norms of independence, and this can make them feel unfamiliar to working-class students, who are more interdependence-orientated, triggering a sense of threat and identity incompatibility. Difference-education interventions typically expose incoming students to real-life stories told by senior students from a variety of backgrounds that link their social backgrounds to their experience of college. These stories help students to see how their background

can afford them particular strengths, such as the ability to put the challenges of college life into perspective ("a drop in the bucket" compared to other challenges in their life). They also expose them to strategies that senior peers from similar backgrounds have employed to overcome obstacles, such as relying more on faculty for guidance on course selection rather than on parents who had not been college educated (Collier & Morgan, 2008). This helps all students, but especially those of low SES, validate their background and see it as a positive resource to actively draw upon in their social and academic life.

The theory underlying difference-education interventions—known as cultural mismatch theory—strongly emphasizes the role of the social and cultural context. In fact, work in this area has assessed the context by surveying the values and norms that senior administrators in elite educational institutions endorse in their students and demonstrated that these were incompatible with the values and norms of first-generation students (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012a). This, in turn, hampered their performance. We draw on this body of work in our model.

Growth Mindset Interventions

Growth mindset interventions are based on the idea that reframing beliefs about intellectual abilities from fixed ("fixed mindset") to malleable ("growth mindset") has positive consequences for motivation, persistence, and attainment (Dweck & Yeager, 2019; Mueller & Dweck, 1998). Although the intervention is primarily targeted at individuals rather than groups, there is (somewhat mixed) evidence that it can help to close educational outcome gaps by disproportionately improving outcomes for groups of students with historically relatively low levels of academic performance (Aronson, Fried, & Good, 2002; Broda et al., 2018; Good, Aronson, & Inzlicht, 2003; Hamm et al., 2020; Paunesku et al., 2015; Yeager et al., 2016a, 2016b), in particular low-SES students (Sisk, Burgoyne, Sun, Butler, & Macnamara, 2018). We argue that this is likely to be because they help to reduce identity incompatibility by encouraging students to believe they can succeed in education. These interventions may be less effective with students who have already been exposed to the idea that educational success results from high levels of effort.

The importance of local context is demonstrated by a large-scale growth mindset study covering over 12,000 students in 65 U.S. schools (Yeager et al., 2019). The intervention offered greater benefits to lower achieving students if they attended schools whose students had an overall higher orientation towards growth mindset, suggesting that a supportive peer norm is an important factor in encouraging students to adopt a growth mindset. We highly value such research, which empirically demonstrates the importance of context and helps develop increasingly precise theories (Tipton, Bryan, & Yeager, 2020). Yet, it does not

inform practitioners who are concerned about inequalities within a particular context whether psychological processes are contributing to educational inequalities, and thus which intervention might work. We suggest combining this approach with our own.

Utility Value Interventions

Utility value interventions help students see the relevance of education to their lives by encouraging them to identify the value of the content of a given field of study to them and their lives (for reviews see Boucher, Fuesting, Diekman, & Murphy, 2017; Harackiewicz & Priniski, 2018; Harackiewicz et al., 2014). This helps them create new, or solidify existing, links between their own identity and their coursework, so reducing any preexisting sense that the two are incompatible. This in turn increases motivation, persistence, and academic performance.

Some examples serve to illustrate how utility interventions operate in practice and how their results depend on context. In one study, as part of the academic evaluation of their first year in university, students in a foundational gateway course for the biological sciences were asked, on three occasions over the year, to select a concept covered in their coursework and to write a one- or two-page essay discussing its relevance to their own life (Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2016). The task included the instruction to "include some concrete information that was covered in this unit, explaining *why* this specific information is relevant to your life or useful for you. Be sure to explain *how* the information applies to you personally and give examples." The intervention helped all groups of students, but was most beneficial for first-generation students from underrepresented ethnic minorities, reducing the end-of-year achievement gap between them and continuing-generation/White students by a remarkable 61% (covariate adjusted).

Variants of this type of intervention can also increase interest and motivation in students by increasing the extent to which their parents value STEM subjects, which is then passed on to their children (Harackiewicz, Rozek, Hulleman, & Hyde, 2012; Rozek, Hyde, Svoboda, Hulleman, & Harackiewicz, 2015, 2017). Again, however, the social and cultural context matters; where parents are already strongly orientated to and have a high regard for STEM, or where there is a mismatch between the content of the intervention materials and the capabilities of their audience, such interventions can be ineffective or even backfire. For example, one study aimed to increase parents' career support to their children through a website where parents and students could find information about the usefulness of different school subjects for future careers (Piesch et al., 2018). However, accessing the website actually *reduced* the level of career support that parents provided to their children, as well as reducing the importance that they ascribed to it. The

authors speculate that parents' perceptions of their own competence might have been reduced once they realized how many career options their children have, and/or that they could leave this task to others once they learned how many other sources of support were available. This demonstrates how important a rich understanding of the educational context is when designing an intervention. We will later provide practical guidance on how to develop such an understanding, but we now explore this idea further with another example.

Based on evidence that utility value interventions can be effective in 4-year colleges, one study sought to examine whether these benefits would extend to a 2-year college setting (Canning, Priniski, & Harackiewicz, 2019b). Compared to students in 4-year colleges, students in 2-year colleges are more likely to be less well prepared academically, older, female, Black or Hispanic, from a low-income family and have parents who did not attend college (Cataldi, Bennett, Chen, & Simone, 2018; Horn, Nevill, & Griffith, 2006). They are also more likely to commute to college and have significant commitments outside college, such as full- or part-time employment or caring for children. The intervention asked students in introductory biology and psychology courses to choose a topic from their course and write a 500-word essay about how it was relevant to their own life or useful to them. The intervention made the course more interesting for students who were doing well, but actually *decreased* interest for the students who were struggling. A detailed textual analysis of the essays indicated that the lower performing students may not have processed the course content enough to have benefitted from the intervention. For these students, the act of trying to identify ways in which their course could benefit them might have exacerbated feelings that they lacked competence in the subject (Lee, Bong, & Kim, 2014). We will later show how the *Identities in Context* model can help identify where an additional element can be added to utility value interventions to boost such students' sense of competence and so reverse these negative effects.

Effect Size Estimates and Variation, and Policy Implications

In the discussion above, we have highlighted the variation in effectiveness of wise interventions. We argue that this variation partly reflects a lack of explicit theorizing regarding the contextual factors that determine when psychological factors may be contributing to educational inequalities and thus when wise interventions may be effective for certain groups. Indeed, the wise interventions that have been shown to be successful have often been developed and/or implemented by researchers and practitioners who have a deep understanding of psychological theory and the context in which they work, and so are able to tailor and target an intervention to ensure it will be effective for a particular group. However, for those who are less familiar with the theory or context, there is no framework that outlines the features of the local context that are important to consider when

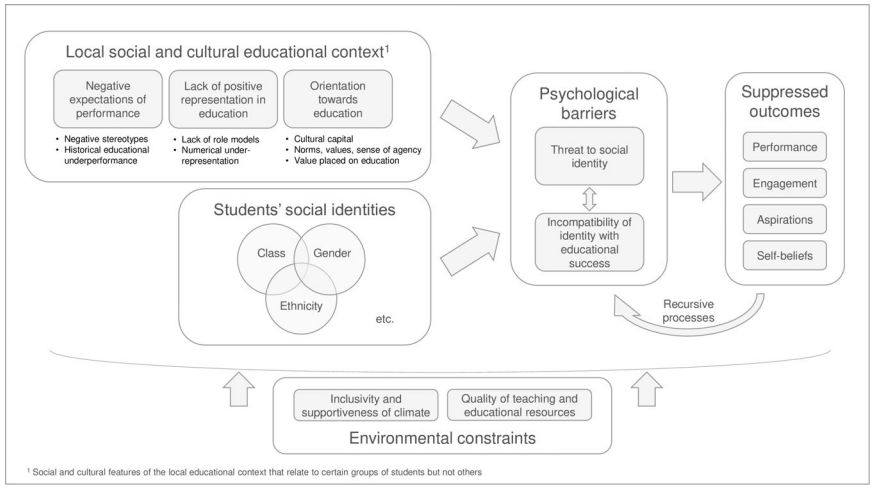

Fig 1. The *Identities in Context* model of educational inequalities.

deciding which intervention, if any, may work within their particular context. Below, we outline a framework—the *Identities in Context* model (Figure 1; Easterbrook et al., 2019)—that specifies the social and cultural factors that, if present in the local context, are likely to mean that social identity threat and identity incompatibility contribute to educational inequalities and so wise interventions are likely to be effective (Stephens, Markus, & Fryberg, 2012b; Walton et al., 2013). However, before we outline the model, we would like to emphasize three points.

First, the context matters not only because the social and cultural factors that we outline below can spark threat and incompatibility, but also because contexts need to be supportive and sensitive enough to afford and sustain positive psychological change. Wise interventions offer students the opportunity to view their circumstances with a different perspective; but in order for this new perspective to bring about lasting and meaningful change, the context needs to react to, support, and sustain such a change: the seed that the intervention plants needs fertile soil in which to grow (Cohen & Sherman, 2014; Ferrer & Cohen, 2018; Reeves et al., 2020; Sherman, Lokhande, Müller, & Cohen, 2020; Walton & Yeager, 2020). For wise interventions to be effective, they should be designed for students who are vulnerable to psychological barriers and who are in an educational context that supports the new perspective afforded by the intervention (Walton & Yeager, 2020). This means, first and foremost, that teaching and educational resources must be of a sufficiently high standard that, once a barrier faced by an individual is reduced or removed, individuals can benefit from their latent abilities to their full extent.

Second, caution must be taken regarding how successful wise interventions are communicated because some communications can trigger detrimental consequences outside of the study context (Blanton & Ikizer, 2019). For example, one study asked people to read a press release about an intervention designed to reduce the attainment gap between Black and White school students in the United States. In one experimental condition, the press release was almost identical to an actual press release for a wise intervention (Sherman et al., 2013), and in the other condition it drew on material from another more complex, multifaceted intervention (Slavin & Madden, 2006). People who read the version based on the wise intervention subsequently more highly endorsed the view that Blacks can easily overcome historic disadvantages through personal effort. We recommend that communications about wise interventions should take this risk into account, perhaps by emphasizing that they are aimed at removing barriers that are the result of factors that are outside the control of students (economic inequality, negative stereotypes, institutional bias etc.) and, as such, are best understood as short-term and bounded solutions to much wider and ingrained societal problems.

Third, there are important policy implications related to the size of the effects of interventions. For example, since it is estimated that the academic performance of the average student increases with one year of education by 0.21 standard deviations from age 15 to 16 (see Table 5 of Lipsey et al., 2012), an intervention that increases academic performance by a seemingly modest 0.2 standard deviations could be very significant for a student of that age if it creates a platform for building sustained benefits over time. Indeed, wise interventions are often low cost, disproportionately benefit low performing groups, have effects that can be sustained over time and context, and, in contrast to interventions that target specialized knowledge, can have effects on a broad range of academic, behavioral, and psychological outcomes. These characteristics make wise interventions particularly suitable for scaling up, even where the average size of their effect on the overall population is relatively small (Bakker et al., 2019; Kraft, 2020; Slavin & Madden, 2011).

The *Identities in Context* Model: Linking Contextual Variation with Psychological Barriers

We have argued that, within different contexts, different groups perform poorly in education, are more likely to experience psychological barriers to educational success, and may benefit from wise interventions. But which features of the local context determine which groups experience these things?

To answer this question, we draw on the *Identities in Context* model of educational inequalities (Easterbrook et al., 2019), shown in simplified form in

Figure 1.[10] This stipulates that students' social identities are associated with psychological barriers only if certain social and/or cultural features relevant to the group are present within the local educational context. It also shows that common environmental constraints—such as the quality of the school and its sensitivity to and support for positive change in students—have effects for all students. The model, therefore, illustrates the importance of the context in determining the meaning and worth of different groups' social identities.

The first feature of the social and cultural educational context in the *Identities in Context* model refers to how out-group members perceive any given group: whether there exist salient negative expectations about that group's performance. If the group has performed poorly in the past, and/or there are prominent negative stereotypes regarding their academic performance, then people in that context are likely to expect that the group will do badly in education. The group members themselves are likely to perceive that others hold these expectations (and may even internalize them themselves), which will instill a feeling that their social identity is stigmatized, devalued, and threatened within that context.

The second feature refers to how any given group is represented within the relevant domain, which we refer to as positive representation in education; that is, whether there are role models in the group who have succeeded in and reaped benefits from education, and the visible presence of group members in elite professions and educational institutions and positions that require a high level of education. Such representation, when perceived by group members, helps inoculate them from social identity threat (Dasgupta, 2011) and reduces perceptions of identity incompatibility (Oyserman et al., 2006). In contexts in which few group members have succeeded and reaped benefits from education, individuals are likely to feel that education is a worthless endeavor and irrelevant to the lives of people like them.

Finally, a student's group membership can lead to threat and identity incompatibility when the group's orientation towards education—that is, the group's norms, values, goals, and sense of agency regarding education—is negative or in conflict with those endorsed and supported by educational institutions. This includes a lack of cultural capital, endorsing values or norms that are incompatible with those endorsed and supported by educational institutions, and placing a low value on education. These are often transmitted to students via parents or other caregivers who themselves felt alienated and threatened in education. We now discuss each of these in turn.

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[10] We present the model in simplified form here in order to emphasize the key relationships between its various elements. From a formal statistical perspective, however, the model is based on a moderated mediation model. Students' social identities have an effect on their educational outcomes, and this represents the effect of structural inequalities and institutional biases against certain groups. This effect is mediated by psychological barriers, and this mediation is moderated by the local educational context.

Negative Expectations of Performance

Negative stereotypes. Perhaps the most obvious feature of the local context that can trigger social identity threat and identity incompatibility perceptions among some groups of students is the presence of negative stereotypes about their academic ability or intelligence. Negative stereotypes are key antecedents to threat in theories of social identity threat (especially stereotype threat; Steele & Aronson, 1995) and are thought to explain why a simple question about group membership can be enough to evoke stereotype threat and thus reduce performance only among low-status groups (Mello et al., 2010; Spencer & Castano, 2007). They are also thought to explain the finding that describing a test in terms that make evaluation possible—and thus the possibility of confirming the negative stereotype—also reduces performance among low-status groups (Steele & Aronson, 1995). For example, one study conducted in the United States found that White students and Black students performed equally well on an intelligence test (when covariate adjusted) when the test was described as a series of puzzles, but that the performance of the Black students dropped when the test was described as assessing their intelligence and thus became relevant to the prevalent negative stereotype about their academic ability. Particularly concerning was the finding that the performance of the Black students also dropped when the test was described using the standardized text suggested to accompany the test (Brown & Day, 2006; see also Désert et al., 2009). Similar results have been found with other groups in other contexts (Croizet & Claire, 1998; B. Spencer & Castano, 2007).

Furthermore, research that creates new groups in the laboratory has found that merely being made aware that there is a negative stereotype about your group's ability can cause social identity threat and identity incompatibility perceptions and thus reduce performance on relevant tasks (Leyens, Desert, Croizet, & Darcis, 2000; Steele, 1997). Indeed, simple cues in the local context that are congruent or associated with negative social stereotypes have been found to produce negative effects for the relevant groups. One study, for instance, found that the presence of cues aligned with the stereotype of male computer scientists—geeky posters and video games—in a computer science classroom had a negative effect on women's performance (Cheryan, Plaut, Davies, & Steele, 2009).

The negative stereotypes that are prominent in different countries tend to target those groups that have historically had low status and performed poorly in education, and thus tend to reinforce and perpetuate inequality. In the United States, for example, negative stereotypes regarding the academic ability and intellectual prowess of Black and Latino students are widespread and shown on both implicit and explicit measures of attitudes (Baron & Banaji, 2006; March & Graham, 2015; Nosek et al., 2007). In many countries, poorer students perform worse in education, and there are many pejorative attitudes about the poor.

In the United Kingdom, for example, several popular television programs have portrayed families on low incomes or benefits as being lazy and lacking motivation to engage in economic activity (Augoustinos & Callaghan, 2019; Jones, 2016). One Swedish study found that respondents described the stereotypes about "poor citizens" using terms such as "lazy," "uneducated," "unintelligent," "dishonest," and "work-shy" (Lindqvist, Björklund, & Bäckström, 2017). Moreover, Shutts and colleagues (2016) found that children as young as four in the United States expected children who were portrayed as wealthy to be more popular and to be less likely to make a mistake in a coloring task than those who were portrayed as poor. There are also negative implicit and explicit attitudes about women in STEM (Eagly & Karau, 2002; Farrel & McHugh, 2017, Nosek et al., 2007). The prevalence of these negative stereotypes clearly signals to some groups of students that their group is not valued in certain educational contexts.

These stereotypes do not just affect the students who are subject to them; they are also prescriptive and therefore lead people to hold biases that reinforce and perpetuate them. Educators and teachers in Europe have been shown to have biases that reinforce stereotypical beliefs about the lower performance of students from some ethnic groups, from lower social classes, and, within certain subjects, of certain genders (Autin, Batruch, & Butera, 2019; Batruch, Autin, & Butera, 2017, 2018; Burgess & Greaves, 2013; Muntoni & Retelsdorf, 2018). For example, evaluators of an identical dictation test spotted more errors when they were led to believe it was written by a low- compared to high-SES student (Autin et al., 2019), and teachers were harshest in their assessments of tests that were supposedly completed by high-achieving low-SES students (Batruch et al., 2017), thereby helping to reestablish the expected social order. Students from Turkish and Moroccan immigrant backgrounds face widespread negative stereotypes and discrimination in some European countries; in the Netherlands, those who had teachers with higher levels of unconscious bias against people from those backgrounds had lower academic attainment than those whose teachers had lower levels of unconscious bias (van den Bergh, Denessen, Hornstra, Voeten, & Holland, 2010), while in Belgium, those who attended schools that they perceived to discriminate against them had lower academic attainment than those who perceived their school to treat people more equally (Baysu et al., 2016). Any unconscious biases by teachers may be particularly consequential for older school students in countries where high-stakes exams are cancelled due to the COVID-19 pandemic if, as was the case in England, results are instead based wholly or in part on teachers' subjective estimates of likely student grades (Ofqual, 2020).

Negative stereotypes can, then, disadvantage students in several ways that lead to long-term detrimental effects. An example that draws on the common practice of academic tracking (also known as "setting") may help to illustrate this. Many schools evaluate students in each subject and place those with similar abilities together to learn in homogeneous ability sets. In some countries, such

as the United Kingdom, students' academic tracks are usually reviewed annually, whereas in others, such as the Netherlands, academic tracks are set on entry to high school and subsequently reviewed only on entry to postgraduate study. Students who are expected to do poorly because they are subjected to descriptive and prescriptive negative stereotypes are more likely to get placed in lower sets than their ability warrants (Autin, Batruch, & Butera, 2015; Batruch et al., 2017; Connolly et al., 2019; Francis, Hodgen, Craig, Taylor, Archer, Mazenod, Tereshchenko, & Connolly, 2019a; Muntoni & Retelsdorf, 2018). It seems likely that these students will perceive this as a stark indication that they are not expected to do well or that they cannot trust the school to treat them as individuals rather than as a member of a stereotyped group (Yeager, Purdie-Vaughns, Hooper, & Cohen, 2017), particularly because some stereotyped groups tend to be overrepresented in lower sets (specifically, lower class students, girls, and some ethnic minorities; Connolly et al., 2019). Setting tends to have negative effects on attainment and confidence (Education Endowment Foundation, 2015; Francis et al., 2017, 2020), and we suggest that social identity threat is part of the reason why.

The above evidence emphasizes the importance of not inadvertently triggering social identity threat or a sense of identity incompatibility among students, and of creating a climate that encourages *all* students to feel welcome and to consider education as something that can benefit them and that they can strive at (Walton et al., 2013). There are a number of ways that practitioners can help create such an inclusive climate.

Perhaps the most obvious of these is to address any conscious or unconscious bias by teachers and college faculty against certain groups of students, in particular low-SES students and those of certain ethnicities, and girls and women in STEM subjects. Teachers, with support from school leaders, can reduce the impact of bias in academic assessment by using clearly defined and objective evaluation criteria (Quinn, 2020). They can also reduce the impact of bias in academic tracking by using objective criteria for and increasing the frequency of tracking allocations (Francis, Taylor, & Tereshchenko, 2019b; Francis, Hodgen, Tereshchenko, & Archer, 2018; B. Taylor et al., 2019), by improving the richness of the curriculum and quality of the teaching in low-attainment tracks (Dunne, Humphreys, Dyson, Sebba, Gallannaugh, & Muijs, 2011; Francis et al., 2018), or by replacing tracking with mixed-ability groupings or groupings by specific activity (Boaler, 2008; Francis et al., 2019b; Mijs, 2016; Tereshchenko et al., 2019). Teachers can also reduce the impact that unconscious bias might have on the trust that students place in them. They can do this by ensuring that students' perspectives and experiences are valued in disciplinary practices (Okonofua, Paunesku, & Walton, 2016, Experiment 3) and by phrasing feedback in ways that reduce the risk of students interpreting it as indicating a bias against them (Cohen, Steele, & Ross, 1999; Yeager et al., 2017).

Another way to create an inclusive climate is to actively encourage and value student diversity and promote its benefits. Diverse and inclusive classrooms and colleges have been shown to be beneficial for students and increase performance (Hansen, Owan, & Pan, 2006; Konan, Chatard, Selimbegović, & Mugny, 2010; Stephens et al., 2015), and members of negatively stereotyped groups are more highly motivated to be successful when they are in organizations that visibly value their social identities (Derks, Van Laar, & Ellemers, 2007). In schools, students who are vulnerable to social identity threat, but perceive that their school embraces inclusion and diversity in their policies, have reported lower levels of social identity threat and higher performance, providing a concrete illustration of a way in which schools can reduce threat (Celeste, Baysu, Phalet, Meeussen, & Kende, 2019). In a college setting, another study showed that underrepresented minority first-year students who read an inclusive multicultural diversity statement earned higher marks 2 years later compared to those who read a color-blind diversity statement (Birnbaum, Stephens, Townsend, & Hamedani, 2020). However, it is important to implement these types of initiative sensitively in order to avoid unintended negative consequences. For example, they can create institutional complacency that is not justified by the reality (Dover, Kaiser, & Major, 2020) , or arouse in members of the majority (otherwise unthreatened) group a sense of uncertainty or threat about their own fit (Verkuyten, 2006).

There are other, more subtle, ways in which practitioners can avoid the pernicious effects of negative stereotypes. For example, on analysis of U.S. data showed that the simple act of asking women for demographic information after, rather than before, a calculus test increased their scores substantially (Danaher & Crandall, 2008). The authors estimated that, if implemented nationally, this change would increase the number of women in the United States who receive college calculus credit by over 4,700 annually.

Historical underperformance. Negative stereotypes may be fueled by a group's poor prior performance, another feature of the local context that can trigger social identity threat and perceptions of identity incompatibility. For example, one study created novel groups in the lab and then informed participants that their group tends to underperform on certain tasks (Martiny, Roth, Jelenec, Steffens, & Croizet, 2012). This information was sufficient to decrease performance on those tasks, especially among participants who identified strongly with their group, implying that social identity threat was the mechanism through which this effect occurred.

Indeed, stereotype threat has been induced among midperforming Black and Latino school students by presenting them with a graph depicting ethnic attainment gaps in which their group performs poorly in comparison to the White majority (Howard & Anderson, 2010), and among men on emotional processing (but not other) tasks by merely informing them that they have historically performed

worse than women on those tasks (Leyens et al., 2000). Another study found that students eligible for free school meals in English schools reported lower belonging and identity compatibility when the school they attended had larger historical attainment gaps between students eligible for free school meals and their peers, and that this accounted for some of the existing attainment gap (Easterbrook et al., 2020b). Furthermore, a meta-analysis found that the average effect size of stereotype threat manipulations on women's maths performance is smaller in contexts that have smaller gender based attainment gaps in mathematics (Picho et al., 2013). This is presumably because women's gender identity is more positive and perceived as more compatible with academic success in contexts that have smaller gender gaps (see also Manstead, Easterbrook, & Kuppens, 2020).

Given the prominence that is afforded to attainment gaps in the media and educational policy, such historical underperformance is likely to be salient for students. Indeed, some schools provide additional support for some groups of students, such as those eligible for free school meals. On the one hand, this is no doubt beneficial for those students, but, on the other, it may signal to them that their group has historically underperformed and thus induce threat (Hall, Zhao, & Shafir, 2014; House of Commons Work and Pensions Committee, 2004; Kissane, 2003; Lens, Nugent, & Wimer, 2018; Leslie & Mayer, 2014; Sahota, Woodward, Molinari, & Pike, 2014). This means that any policy initiatives that, for example, allow certain groups to enter higher education with lower grades than others—sometimes known as contextualized admissions—need to be carefully managed, not least because they can make these students feel like they are imposters who will not fit in within those institutions once they arrive (O'Sullivan, Bird, Robson, & Winters, 2019). Indeed, such affirmative action policies have been shown to reduce the academic performance of groups that are suffering from social identity threat (Van Laar, Levin, & Sinclair, 2008). Foundation year programs, in which students who have not met the grades to go straight into bachelor degree programs, seem to boost and develop students' sense of belonging, despite their often disadvantaged background (O'Sullivan et al., 2019). This suggests that such programs may be an effective way to increase the proportion of disadvantaged students within higher education without triggering social identity threat.

Often, the groups that have historically underperformed are also those that are subject to negative stereotypes, and these processes feed into and reinforce each other. Attributing the underperformance to stereotype threat, however, can benefit threatened students' performance (Johns et al., 2005; O'Brien et al., 2019), suggesting that being able to attribute historical underperformance to something other than the group's ability is an effective way of dispelling the potential negative effects of historical underperformance. However, those adopting this approach must be cautious; attributing underperformance to pervasive and continuing discrimination and prejudice can be particularly harmful (Schmitt & Branscombe, 2002). Thus, efforts to reduce the potential negative effects of historical

underperformance by teaching students about stereotype threat should be coupled with practices to reduce and eliminate discrimination and prejudice, and include careful communication that highlights the potential disconnect between stereotype threat and immediate prejudice.

Positive Representation in Education

Role models. A long-term consequence of social identity threat and identity incompatibility is that members of low-status groups tend to be underrepresented in positions that are associated with high levels of education. This means that it can be hard for these group members to imagine themselves progressing through and reaping benefits from education, as there is little evidence that members of their group can do so. This can be alienating and demotivating and orientate the group away from education. Providing group members with evidence—in the form of role models—that members of their group can succeed and benefit from education can dampen the experience of social identity threat and weaken perceptions of identity incompatibility. Indeed, one study with female psychology students who were interested in pursuing medical studies (Rosenthal et al., 2013) found that presenting brief biographies of five successful and diverse female physicians increased students' identity compatibility, belonging, and their interest in pursuing a medical career, and a meta-analysis of 45 studies found an overall positive effect of in-group role models on the performance and interest in STEM subjects of members of groups who are underrepresented in STEM fields (Lawner, Quinn, Camacho, Johnson, & Pan-Weisz, 2019).

Field studies and interventions suggest some practical ways in which role models can be utilized to reduce the negative effects of threat and identity incompatibility. In one study, Latino school students—for whom studying STEM subjects tends to be perceived as incompatible with their background—who attended a talk by a successful Latino aerospace engineer were more likely to believe that someone from their background could become a scientist (Hernandez, Rana, Rao, & Usselman, 2017). Another study found that females were more engaged in a MOOC course on data science when that course included female data scientists or female presenters in its videos (Brooks, Gardner, & Chen, 2018). Another found that a gender inclusive images and statements ("The history of computer programming is a history of WOMEN. You can join this epic journey") in online advertisements for a STEM course increased the click-through rate among women by 26%, and women's enrollment by up to 18% (Kizilcec & Saltarelli, 2019).

Role models do not have to be celebrities or high-flying professionals to have positive effects for members of their group. Research has shown that 11-year-old students who reported that they knew people who had benefitted from education—who were likely to be in-group members and perhaps members of their local community—were rated by their teachers as being more motivated and

performing better (Andriessen, Phalet, & Lens, 2006). Teachers can also be role models. Another field study found that women undergraduate students who were taught by female rather than male professors in a STEM university course had more positive attitudes towards the course, were more involved in their classes, and approached their professors more often (Stout, Dasgupta, Hunsinger, & McManus, 2011). In fact, female students did not approach their male professors at all, showing the wide-reaching impact of social identity threat on a range of attitudes and behaviors that are relevant to educational outcomes, and the beneficial effect that role models can have. Other work found that the performance of White, Black, and Latino students in the United States increased if they had race-congruent teachers, particularly for lower performing Black and White students (Dee, 2004; Egalite, Kisida, & Winters, 2015). The implications of this research are particularly concerning for Black students within U.K. higher education institutions, given that only 0.6% of full professors in U.K. higher education institutions are Black (Advance HE, 2019).

This evidence suggests, therefore, that schools and universities should promote a range of role models from different groups to harness the beneficial effects of role models for underrepresented groups. It is important to note, however, that the crucial ingredients that make role models beneficial seem to be that they are presented and present themselves as typical group members and that group members identify with them (Dasgupta, 2011; Turner, 2006). Indeed, evidence has shown that merely being aware of role models does not automatically increase educational success (Ellemers & Van Laar, 2010), and that role models who are presented as exceptions rather than as typical in-group members are unlikely to be motivating because their trajectory and success is not perceived as self-relevant (Gibson & Cordova, 1999). Educators should therefore also encourage their students to identify their own in-group role models who have succeeded and benefited from education.

Numerical representation. The awareness of relevant role models is related to the representation of group members in elite educational institutions and in prominent positions that require high levels of education. Groups that do not have many members in those elite positions may take this as evidence that they are not wanted or valued in elite educational institutions and thus that their social identities are incompatible with being someone who can succeed in and reap benefits from education.

Ethnic minorities, women, and lower-class groups tend to be underrepresented at elite educational institutions, at least within certain subjects. Reports suggest that 80% of Oxbridge (Oxford and Cambridge Universities, two world-leading institutions) students come from the most privileged groups (Weale, Adams, & Bengtsson, 2017), and that, for 50% of universities in England, less than 5% of the White students admitted are from the most disadvantaged

geographical areas. Poorer and underrepresented students who do attend university tend to attend less selective universities or further education colleges, meaning that the aggregated statistics often provide an unrealistically optimistic view of the representation of these groups within elite higher education institutions (Atherton & Mazhari, 2019; Jerrim, Chmielewski, & Parker, 2015). Indeed, even among students who do achieve the grades necessary to attend elite institutions, those from disadvantaged backgrounds are more likely to opt to attend less selective universities or to drop out of education entirely (Campbell et al., 2019; Jerrim et al., 2015).

Similar underrepresentation is evident in elite positions that require high levels of education. Ethnic minorities, women, and people from lower classes are underrepresented in prominent companies, prestigious employment, and politics. In England, only 8% of members of the Labour political party—a party born out of the working class, with the aim of representing its interests—are from working class backgrounds (O'Grady, 2019) and only 6% of doctors in England say they are from a working class background (Social Mobility Commission, 2017). While just 7% of the population of England are privately educated, 29% of politicians, 74% of judges, 71% of barristers, 61% of doctors and 34% FTSE CEOs are privately educated (Kirby, 2016). For people from working-class or poorer backgrounds, this sends a message that it is very unlikely that they will be able to enter these elite institutions or professions.

Interviews with nonstudents and students in secondary and further education have shown that working-class people tend to believe that only a second-rate form of higher education is available to people like them (Hutchings & Archer, 2001; Reay, Davies, David, & Ball, 2001). Similarly, Nieuwenhuis and colleagues (2019) found that working-class college students in Wales did not expect to fit in at highly selective universities in the United Kingdom and so were less likely to apply to them (even after accounting for their grades). Another study found that students were more interested in taking college majors in the United States in which they thought their own race was going to be well represented (Murphy & Zirkel, 2015). Thus, a lack of numerical representation seems to dampen students' motivation and increase their sense of identity incompatibility.

The underrepresentation of some groups of students in elite institutions further undermines those students' social identities because people tend to believe that education is meritocratic and that those who attend elite institutions get there by virtue of their intelligence and motivation (Kuppens, Spears, Manstead, Spruyt, & Easterbrook, 2017; Warikoo & Fuhr, 2014). It is also worth noting, however, that underrepresentation can result not only from the psychological processes that hold back lower status groups, but also from a bias of people from higher status groups to provide support, access to networks, resources, opportunities, sponsorship, and mentorship to "people like them," inadvertently excluding out-group members (DiTomaso, 2015; Horvat, Weininger, & Lareau, 2003). This

discrimination without prejudice, or *bias for* in-groups, entrenches the allocation of high-status positions with groups that are already overrepresented in those positions.

Group orientations: Norms, Values, and Sense of Agency

Cultural capital. Discrimination without prejudice may be partly why some groups are unable to gain cultural capital, an understanding of the tacit rules about how to interact, engage, and succeed in elite educational institutions (Bourdieu, 1974; Goudeau & Croizet, 2016). Educational institutions are often orientated towards certain norms, values, and ways of achieving agency so that groups with different orientations—those lacking cultural capital—can find those institutions alienating and threatening. This is mostly due to the impact of historical inequalities on the orientation of educational institutions. For example, higher education institutions have historically been the domain of the White middle class, which has meant that White, middle-class norms, values, and agency—which tend to be orientated towards independence and achieving personal goals—have seeped into the very fabric of those institutions. Those from different backgrounds or cultures—where, for example, norms, language, agency, and goals may be more interdependently orientated, emphasizing the role of family and community—can feel that the language and norms used by those institutions are unfamiliar and alien. This can increase how difficult they perceive their academic tasks to be, discourage them from making use of the resources that are available to support them, increase feelings of being an imposter, and decrease their performance (Canning, Lacosse, Kroeper, & Murphy, 2019a, Dittmann, Stephens, & Townsend, 2020; Okagaki, 2001; Phillips, Stephens, & Townsend, 2015; Stephens et al., 2012a; Stephens, Dittmann, & Townsend, 2014a; Stephens, Fryberg, & Markus, 2010; Stephens, Townsend, Markus, & Phillips, 2012c).

Studies have shown that a subtle change in the language used by elite U.S. universities in a welcome letter to students—from a focus on independence that emphasized self-direction to one of interdependence that emphasized communal working and community—decreased first-generation students' stress (Stephens et al., 2012c), decreased how difficult they perceived the work to be, and increased their performance (Stephens et al., 2012a). Furthermore, a series of recent studies found that working-class students' attainment was higher when they worked in interdependent ways in groups than when they worked individually (Dittmann et al., 2020), suggesting that independent assessment methods disadvantage students who are more orientated towards interdependence.

Other types of values and norms can make some groups experience identity incompatibility and orientate them away from education. Working-class men in England from a range of different ethnic backgrounds perceive academic success as antithetical to their conception of successful manhood (Archer & Hutchings,

2000; Archer, Pratt, & Phillips, 2001), and working-class girls consider academic success as conflicting with their feminine ideals (Archer et al., 2013), both of which orientate those groups away from education. This potential for incompatibility between gender ideals and academic success is a further example of how the cultural orientation that is accepted and embedded within educational institutions can disadvantage certain groups.

This clash of norms, values, and agency between those endorsed by families and those endorsed by educational institutions can lead to members of those groups feeling threatened and alienated within those institutions (Goudeau & Croizet, 2016), unable to successfully navigate their way through those educational institutions, and/or unable to support their children through them (Lareau, 1987, 2002; Markus & Stephens, 2017; Okagaki, 2001; Weininger, Lareau, & Conley, 2015). This evidence suggests that adopting language, learning methods, and assessments that are more sympathetic to interdependent norms, values, and ways of working is likely to reduce threat and incompatibility among interdependently orientated groups—including some immigrant groups, ethnic groups, and lower class students (Dittmann et al., 2020; Jordan, 1984; Markus & Kitayama, 1991; Markus & Stephens, 2017; Okagaki, 2001; Vogt, Jordan, & Tharp, 1987)—but would have no detrimental effect on those students who are more orientated towards independence.

Value placed on education. Regardless of the orientation of institutions or the cultural capital of different groups, some groups simply place a low value on education and so disengage and distance themselves from educational systems. The value that groups place on education is often determined by parents' experiences within the education system, which feeds into how they communicate about education to their children. Indeed, parents' communication about the relevance of education has been shown to predict their child's interest in education (Hyde et al., 2017), and parental involvement in their child's education has a strong impact on children's school outcomes across all ages (Huat See & Gorard, 2015; Schaefer, 1991).

One study of White working-class school students in England found that a major contributor to the poor academic attainment among this group were the very low aspirations and interest in education held by their parents (Demie & Lewis, 2011), who tended to feel hopeless and fearful towards education and wanted their children to remain close to their home rather than to move away for further or higher education. These attitudes were reflected in their children's own attitude, motivation, and performance in education. Other studies have also found that White parents in lower income households value their children's education less, expect less from it, and tend to be less involved (Heckman, 2011; Strand, 2014; Wang & Sheikh-Khalil, 2014; Williams Shanks & Destin, 2009). Indeed,

parental engagement in their child's education has been found to be a major contributor to the social class attainment gap in England (Strand, 2014).

Part of the reason that some parents place little value on education is that they do not see the value or utility of education in their lives (Demie & Lewis, 2011; Hyde et al., 2017). These attitudes are easily passed on to children. Interventions that aim to increase the value that parents place on education have been shown to increase their children's educational attainment (Harackiewicz et al., 2012; Rozek, Svoboda, Harackiewicz, Hulleman, & Hyde, 2017), demonstrating the potential importance of interventions that target parents.

Other groups have different conceptions of the role of parents within education and the specific benefit that education might bring their groups. Some Asian parents, for example, see the educational success of their children as a marker of successful parenting and something that can bring honor to their family. They understand educational success as resulting from high levels of individual effort, which orientates these groups towards education and a growth mindset, and may partially account for the academic success of Asian students (Gibson, 1987; Hieshima & Schneider, 1994). It may be that the particular effectiveness of growth-mindset interventions for low-SES students is due to this group's cultural orientation and understanding that educational success is not available to people like them, no matter how much effort they put in. Being aware of cultural differences between groups in the local context can help educators to understand which groups are likely to need additional support to counteract a lack of educational support from home.

Members of groups who are orientated away from education, then, are likely to do poorly within education, partly because they experience identity incompatibility—a sense that education is not relevant to them or their lives. Along with differences in home environments and access to technology and learning resources, different groups' orientations towards education are likely to contribute to a reduction in academic ability over the summer (often known as "summer learning loss"), which tends to increase the socioeconomic gap in academic attainment (Downey & Hippel, 1998; Meyer, Yao, & Meissel, 2020; Quinn, Cooc, McIntyre, & Gomez, 2016; von Hippel, Workman, & Downey, 2018). They are also likely to be a major driver of any increase in educational inequality that results from the school closures due to the COVID-19 pandemic, so much so that, while most students are expected to suffer learning loss because of the school closures, the most advantaged may actually gain (Francis, 2020; Kuhfeld & Tarasawa, 2020).

Linking Wise Interventions to the Identities in Context Model

By understanding the local context in sufficient detail, then, it should be possible for educators to predict which groups (if any) are vulnerable to experiencing

social identity threat and perceiving identity incompatibility, and thus are facing psychological barriers that are likely to detract from their educational outcomes and drive attainment gaps. It should then be possible to identify and tailor a specific wise intervention to target the specific psychological barriers faced by that group. Our goal, therefore, is to outline the features of the local context that, if present, are likely to mean that *psychological barriers* are contributing to educational inequalities between groups. If they are, then wise interventions are good candidates for reducing educational inequalities and enabling underperforming groups to realize their potential.

We do not wish to imply that context has been ignored by researchers. There are, in fact, detailed and elegant theories about why and when interventions can bring about long-term change that emphasize the role of context, many of which we have reviewed above, for example, cultural mismatch theory (Stephens et al., 2012a), seed and soil theory (Walton & Yeager, 2020), and the trigger and-channel process (Ferrer & Cohen, 2018; see also Hecht, Priniski, & Harackiewicz, 2019). Indeed, in contexts in which prejudice towards a group is institutionally endorsed so that there are very few opportunities for the stigmatized group to flourish, wise interventions are unlikely to succeed, even if threat and identity incompatibility contribute to educational inequalities. Similarly, in poor quality environments where students are not adequately supported, interventions are likely to flop. We incorporate these factors into our model under the label of environmental constraints. These are undoubtedly essential developments that progress the science of wise interventions, which are now being empirically tested and validated by large-scale studies (e.g., Borman et al., 2018; Yeager et al., 2019).

We can now map the wise interventions that we reviewed earlier onto the *Identities in Context* model. Below, we highlight the most prominent pathways in the model that each intervention targets. However, through intentional design, spillover, and/or recursive effects, it is likely that each intervention will have wider impacts on other paths than those we identify. Our aim is to point out the most direct paths (see Table 1).

Values affirmation may be particularly effective within contexts in which negative performance expectations—which threaten the value of a group's social identity—are rife for a particular group and where there is limited positive representation. Two examples offer support for this. Borman and colleagues' (2018) study found that a values affirmation intervention boosted the performance of African American and Latino students particularly in schools in which there was a large ethnic attainment gap (with these groups performing worse than European Americans) and in which these students were in a smaller numerical minority. Another study (Easterbrook et al., 2020b) found that students in English schools who were eligible for free school meals had lower levels of belonging and greater levels of identity incompatibility if they attended schools in which the attainment

Table 1. How Wise Interventions Can Help Certain Groups of Students by Changing Their Subjective Experience of Education

	Local educational context contributing to subjective experience										
	Negative expectations		Lack of positive representation		Mismatch in orientation towards education						
Pre-intervention subjective experience of certain groups of students	Negative stereotypes	Historical educational underperformance	Lack of role models	Numerical underrepresentation	Lack of cultural capital	Non-aligned norms, values, sense of agency	Low value placed on education	Primary psychological barrier	Wise intervention	Post-intervention subjective experience of ***all*** students
"People like me don't succeed in education"	●	●	●	●				Social identity threat	Values affirmation	*"People like me can succeed in education"*
"People like me don't belong here"	●	●	●	●				Social identity threat	Social belonging	*"People like me belong here"*
"I don't understand the rules of the game here and I don't fit in"					●	●		Identity incompatibility	Difference-education	*"I understand how things work here and my background is valued"*
I can't get better at this"						●		Identity incompatibility	Growth mindset	*"I can get better at this"*
"Education won't help people like me achieve our goals in life"						●	●	Identity incompatibility	Utility value	*"Education can help people like me achieve our goals in life"*

gap between students eligible for free-school meals and their peers was larger in previous years.

Social belonging interventions arise from research into the negative effects of stereotypes on individual social life (Walton & Yeager, 2020), but they are also clearly related to a lack of positive in-group representations within education. We therefore propose that they reduce the impact of negative expectations and a lack of positive in-group representation on the relationship of pupils' group membership with threat and incompatibility.

Difference-education interventions aim to change the way that students perceive their educational institution from one that rejects their values to one that embraces them. Thus, it reduces the bolstering effect of in-group orientation towards education on the link between students' group memberships and threat and incompatibility. These interventions may be most effective at reducing educational inequalities in contexts in which underperforming groups have different cultural orientations and norms from those that are prominent in the local context.

Growth mindset interventions were developed from the concept of learned helplessness (Walton & Yeager, 2020), but growth and fixed mindsets tend to be more commonly endorsed among certain groups. Thus, we suggest that growth mindset interventions may help to reduce attainment gaps between groups in contexts in which a distinct group has an orientation that is associated with fixed beliefs, such as lower socioeconomic groups. This is not to say that such interventions will be ineffective in other contexts—indeed, they may well improve the performance of all students—but they may be less likely to reduce educational inequalities.

Utility value interventions make educational content directly relevant to students' lives, and so aim to alter the social and cultural context by shifting a group's orientation towards education; specifically, the value they place on education. These interventions may, then, be particularly effective at reducing educational inequalities in contexts in which some groups are orientated away from education and do not see its relevance or value to their lives.

For a practitioner with a deep knowledge of the local context and the groups of people in it, the *Identities in Context* model provides a framework to understand when psychological factors are likely to contribute to educational inequalities, and for choosing or designing an appropriate psychological intervention to reduce these. The model should also apply outside of education, to any area whether there are inequalities in outcomes between groups. For example, it may be useful to those who are aiming to improve the outcomes of women in STEM occupations, politics, or other traditionally masculine occupations, or for those wanting to improve outcomes for men in traditionally feminine occupations.

Fig 2. Proposed *Identities in Context* implementation process.

We Need a Deep Knowledge of the Local Context to Understand Why, When, and for Whom Interventions can Work, and How Best to Design and Implement Them

The *Identities in Context* model provides a framework for policymakers and practitioners to address the psychological barriers that contribute to educational inequalities *in their specific context*, whether that be at a country, district, or school/college level. We hope that this represents a step towards helping researchers, policymakers, and practitioners fulfill their ethical responsibility to effectively target interventions in ways that maximize benefits and minimize harm (Binning & Browman, 2020). With this in mind, we have set out some possible steps to turn this framework into a practical implementation process (Figure 2). This can be used by academic researchers, policymakers, or practitioners such as school leaders, teachers, and college faculty. However, where it is not practitioners who are leading the process, we recommend that a dynamic, consistent, and close dialogue with the relevant practitioners be maintained throughout in order to ensure that different perspectives and needs are considered. We also reiterate that communication about such wise interventions needs to be carefully handled (Blanton & Ikizer, 2019).

The first step would be to gain an intimate picture of the relevant context and the groups within it. The core ingredient of this could be a straightforward analysis of existing data to summarize the main academic and behavioral outcome gaps and the numerical representations of the various groups of students (by ethnicity, first generation vs. continuing generation, eligibility for free school meals, gender, etc.). This would be supplemented by discussions, interviews, surveys, and/or focus groups with students, teachers, and/or parents to generate a rich picture of any barriers to learning that result from the interplay between students' social identities and the local educational context: to what extent and in what specific ways different groups of students feel that they do not belong at school/college, to what extent and in what ways they feel threatened, how much and for what reasons they value education, and so on. This step should also aim to identify whether the

context is likely to be sufficiently reactive and supportive for a wise intervention to take root, or whether more fundamental improvements are required.

The second step would be to combine this picture with the *Identities in Context* model, to investigate whether psychological factors are likely to be contributing to any of the academic or behavioral outcome gaps. Where the expertise is available or can be commissioned or obtained through partnership with researchers, statistical tools such as mediation analysis could support this analysis. Where this is not feasible, practitioners could simply identify where groups of students with lower academic or behavioral outcomes than others also reported (in the discussions, interviews, surveys and/or focus groups) greater specific psychological barriers than others. For example, there might be a group of students with a poorer academic or disciplinary record than others who also reported that they worried more than others about not fitting in at the school or college because they feel they have very little in common with their teachers or faculty.

If such psychological barriers for certain groups of students are identified, then one can move to the third step: identify an intervention that targets those barriers for those students. The chances of success could be maximized by working with practitioners to gain insights though pilots or focus groups that will help tailor the materials so that they resonate with the specific students targeted by the intervention (Harackiewicz & Priniski, 2018; Murphy et al., 2020; Tibbetts et al., 2016b; Yeager et al., 2016a), especially where they have overlapping characteristics, for example, low-SES students of specific ethnicities (Brannon, Higginbotham, & Henderson, 2017; Harackiewicz et al., 2016). The fourth and final step would be to implement the intervention, monitor and evaluate its effects, and adjust as necessary.

Some research teams have adopted a similar process, with encouraging results. For example, Murphy and colleagues (2020) were interested in improving the retention of racial and ethnic minority and first-generation students at broad-access universities in the United States. Previous research had found a link between uncertainty about belonging and lower persistence for first-generation and racial-minority students at diverse and mostly less-selective U.S. colleges and universities (Yeager et al., 2016b), so Murphy and colleagues predicted that a social belonging intervention would improve retention among these groups of students. Before intervening, however, they conducted qualitative focus groups, surveys, and interviews with upper year students and administrators at the broad-access university in the United States that they were working with, in order to gain insights into the particular concerns that the incoming first-year students may be facing in that context. They used the insights from this preparatory work to tailor a social belonging intervention so that it addressed the specific concerns of the cohort they were targeting. For example, the preparatory work suggested that the challenges around commuting contributed to lower levels of belonging among

racial and ethnic minority and first-generation students, and so they incorporated messages that normalized commuting concerns and identified strategies that were afforded by the context to deal with these challenges (e.g., "It's been hard to make friends and be involved on campus, and sometimes I envy students who live closer. What made a difference to me was that I found the <university> commuter resource center.…I found other people who take the same route as I do, and the three of us have sort of developed our own little commuter family"). In a randomized control trial of over 1,000 participants, Murphy and colleagues (2020) found that the tailored intervention increased the likelihood that racial-ethnic minority and first-generation students maintained continuous enrollment over the next two academic years, which was due to an increased sense of social and academic fit.

Although following this type of process is likely to improve the efficacy of wise interventions, it is important to remain vigilant to how the interventions are implemented and the psychological mechanisms involved. For example, it is important to ensure that any wise intervention does not single out the group of students at whom its benefits are targeted, as this can portray a message to that group that it is targeted at them because they are expected to perform poorly. This can be threatening and thus counterproductive (Sherman et al., 2009). The most straightforward approach is therefore to carefully follow the *Identities in Context* implementation process to choose and tailor and intervention to give to *all* students with the expectation that it will provide the largest benefits to those who need it most.

However, this approach introduces the risk that the intervention might be counterproductive to those students at whom it is not targeted, since it might trigger psychological processes that are misaligned to the current psychological experience of those students. For example, values affirmation interventions aim to help students who are experiencing stereotype threat by offering them the chance to put their experience of education into a wider, less threatening, context. If, however, some students are experiencing their school work as a positive challenge rather than a threat, then a values affirmation intervention could *decrease* their performance by reducing the importance that they ascribe to their academic tasks and thus their motivation (Binning & Browman, 2020). We hope that the *Identities in Context* model and implementation process will help researchers and practitioners to identify contexts in which such detrimental effects are more likely to occur and thus to adapt their methods accordingly, by, for example, subtly tailoring the intervention for different groups of pupils.

Such tailoring is, in fact, common practice, and can be readily achieved where the intervention is designed to be performed individually by each student rather than together as a group. Taking experiments in values affirmation as an example, students in a control condition are typically given exercises asking them to write about values that are not important to them personally but that might be important to other people (a psychologically neutral task), whereas the exercises for

students in the intervention condition ask them to write about values that are important to them personally, triggering important psychological processes for the targeted students (e.g., Cohen et al., 2006; Sherman et al., 2013). We can envisage using the *Identities in Context* implementation process (see Figure 2) to transfer this idea into a real-life nonexperimental context. After identifying a group of students in a given population who are likely to benefit from a values affirmation intervention, *all* students in the population would be given a writing exercise. However, only those targeted by the intervention would be given a version aimed at affirming their values, while the remaining students would be given a psychologically neutral version.

Tailoring could also be more granular. Tibbetts and colleagues (2016b), for example, found that first-generation students in U.S. colleges benefited from values affirmation if they wrote about independent values, thus emphasizing the fit between some of their own values and those of the institution. For contexts such as this, values affirmation exercises could be subtly tailored to students' backgrounds to emphasize the specific values that could offer optimal benefits.

Conclusion

There are many substantial inequalities in education that lead to enormous inefficiencies and wasted potential for individuals and for society. The most fundamental drivers of these inequalities—differences in access to high-quality schools, institutional biases, adequate nutrition and housing, and so on—represent a long-term challenge. In the meantime, we must look to near- to medium-term ways of reducing educational inequalities. Traditional approaches such as targeted academic support are valuable, but have met with limited success in reducing attainment gaps despite extensive funding over recent decades. In this review, we have shown how a new breed of intervention, known as *wise* interventions, can dramatically reduce attainment gaps and other educational inequalities by reducing or removing the psychological barriers faced by some groups of students—usually those with low status that have suffered from inequality in wider society.

However, these psychological barriers depend crucially on the interplay between students' sense of who they are—their social identities—and their daily experience of education—their local educational context, as set out in our *Identities in Context* model of educational inequalities (see Figure 1). These barriers vary considerably from context to context, and so wise interventions must be implemented with care, to ensure that they are targeted at the particular barriers faced by a given group in a given context, at the same time avoiding harming other groups (Binning & Browman, 2020).

Although we stress that taking local context into account is crucial, some of the policy recommendations that we have made in this review can, in fact, be taken forward straightaway. These relate to the environmental constraints that

are prerequisites for wise interventions to be effective (see Figure 1). The most important of these acknowledges that wise interventions do not work by magic (Yeager & Walton, 2011). Their success depends crucially on the fundamentals of good educational practice being in place: high-quality teaching and other educational resources, well-nourished students, and so on. Without these fundamentals in place, wise interventions are unlikely to yield lasting benefits. Policy recommendations to create an inclusive and supportive climate in the institution can also be taken forward immediately with low risk of harm. In particular, schools and colleges can, with support from policymakers, take steps to actively promote and celebrate student diversity, as well as reduce the impact of any bias against groups of students by implementing measures such as clearly defined marking criteria, avoiding allocating less experienced teachers disproportionately to lower academic tracks, and, if academic tracking is in place, allocating students to tracks using criteria that are as objective as possible. Policymakers can also take steps that, in the longer term, ensure that teachers and college faculty at all levels of seniority better reflect the social and ethnic backgrounds of the student population. All of these, if implemented effectively, are likely to benefit *all* students, but will in addition help reduce feelings of threat and identity incompatibility—and so improve attainment—for many underperforming groups of students.

However, many of the other potential policies and interventions in our review are successful only in certain circumstances. In particular, the wise interventions that we have described (values affirmation, social belonging, difference-education, utility value, and growth mindset) have all been shown to be extremely powerful in some contexts but less so in others, and some have even been counterproductive to some groups of students. If they are to be used effectively, policymakers and individual educational institutions will need to follow a process, perhaps based on the one outlined earlier (see Figure 2), to assess individual educational contexts, and to choose and tailor interventions that maximize the chances of success and minimize the chances of harm in those contexts. This is an exciting time for a range of interventions that have the potential to make a significant contribution to reducing educational inequalities and helping many individuals realize their potential. We hope the work we have outlined here will help realize that potential.

References

Advance HE. (2019). *Equality and higher education: Students statistical report 2019*. Retrieved from https://www.advance-he.ac.uk/knowledge-hub/equality-higher-education-statistical-report-2019

Allen, R., Mian, E., & Sims, S. (2016). *Social inequalities in access to teachers*. Retrieved from http://www.smf.co.uk/wp-content/uploads/2016/04/Social-Market-Foundation-Social-inequalities-in-access-to-teachers-Embargoed-0001-280416.pdf

Ambady, N., Shih, M., Kim, A, & Pittinsky, T. L. (2001). Stereotype susceptibility in children: Effects of identity activation on quantitative performance. *Psychological Science : A Journal*

of the American Psychological Society/APS, *12*(5), 385–390. https://doi.org/10.1111/1467-9280.00371

Anderman, L. H. (2003). Academic and social perceptions as predictors of change in middle school students' sense of school belonging. *Journal of Experimental Education*, *72*(1), 5–22. https://doi.org/10.1080/00220970309600877

Andriessen, I., Phalet, K., & Lens, W. (2006). Future goal setting, task motivation and learning of minority and non-minority students in Dutch schools. *British Journal of Educational Psychology*, *76*(4), 827–850. https://doi.org/10.1348/000709906×148150

Archer, L., DeWitt, J., Osborne, J., Dillon, J., Willis, B., & Wong, B. (2013). "Not girly, not sexy, not glamorous": Primary school girls' and parents' constructions of science aspirations 1. *Pedagogy, Culture and Society*, *21*(1), 171–194. https://doi.org/10.1080/14681366.2012.748676

Archer, L., & Hutchings, M. (2000). "Bettering yourself"? Discourses of risk, cost and benefit in ethnically diverse, young working-class non-participants' constructions of higher education. *British Journal of Sociology of Education*, *21*(4), 555–574. https://doi.org/10.1080/713655373

Archer, L., Pratt, S. D., & Phillips, D. (2001). Working-class men's constructions of masculinity and negotiations of (non)participation in higher education. *Gender and Education*, *13*(4), 431–449. https://doi.org/10.1080/09540250120081779

Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology*, *38*(2), 113–125. https://doi.org/10.1006/jesp.2001.1491

Atherton, G., & Mazhari, T. (2019). Working class heroes. A National Education Opportunities Network (NEON) Report. https://doi.org/10.1177/0094306110367906

Augoustinos, M., & Callaghan, P. (2019). The language of social inequality. In J. Jetten & K. Peters (Eds.), *The social psychology of inequality* (pp. 321–334). Cham, Switzerland: Springer International Publishing. https://doi.org/10.1007/978-3-030-28856-3_20

Autin, F., Batruch, A., & Butera, F. (2019). The function of selection of assessment leads evaluators to artificially create the social class achievement gap. *Journal of Educational Psychology*, *111*(4), 717–735. https://doi.org/10.1037/edu0000307

Autin, F., Batruch, A., & Butera, F. (2015). Social justice in education: How the function of selection in educational institutions predicts support for (non)egalitarian assessment practices. *Frontiers in Psychology*, *6*, 1–13. https://doi.org/10.3389/fpsyg.2015.00707

Bakker, A., Cai, J., English, L., Kaiser, G., Mesa, V., & Van Dooren, W. (2019). Beyond small, medium, or large: Points of consideration when interpreting effect sizes. *Educational Studies in Mathematics*, *102*(1), 1–8. https://doi.org/10.1007/s10649-019-09908-4

Bailey, D. H., Nguyen, T., Jenkins, J. M., Domina, T., Clements, D. H., & Sarama, J. S. (2016). Fadeout in an early mathematics intervention: Constraining content or preexisting differences? *Developmental Psychology*, *52*, 1457–1469. https://doi.org/10.1037/dev0000188

Baron, A. S., & Banaji, M. R. (2006). The development of implicit attitudes. *Psychological Science*, *17*(1), 53–58. https://doi.org/10.1111/j.1467-9280.2005.01664.x

Batruch, A., Autin, F., Bataillard, F., & Butera, F. (2018). School selection and the social class divide: How tracking contributes to the reproduction of inequalities. *Personality and Social Psychology Bulletin*, *45*, 477–490. https://doi.org/10.1177/0146167218791804

Batruch, A., Autin, F., & Butera, F. (2017). Re-establishing the social-class order: Restorative reactions against high-achieving, low-SES pupils. *Journal of Social Issues*, *73*(1), 42–60. https://doi.org/10.1111/josi.12203

Bayly, B. L., & Bumpus, M. F. (2020). An exploration of engagement and effectiveness of an online values affirmation. *Educational Research and Evaluation*. https://doi.org/10.1080/13803611.2020.1717542

Baysu, G., Celeste, L., Brown, R., Verschueren, K., & Phalet, K. (2016). Minority adolescents in ethnically diverse schools: Perceptions of equal treatment buffer threat effects. *Child Development*, *87*(5), 1352–1366. https://doi.org/10.1111/cdev.12609

Bedyńska, S., Krejtz, I., Rycielski, P., & Sedek, G. (2020). Stereotype threat as an antecedent to domain identification and achievement in language arts in boys: A cross-sectional study. *Social Psychology of Education*. https://doi.org/10.1007/s11218-020-09557-z

Bedyńska, S., Krejtz, I., & Sedek, G. (2019). Chronic stereotype threat and mathematical achievement in age cohorts of secondary school girls: Mediational role of working memory, and intellectual helplessness. *Social Psychology of Education*, *22*(2), 321–335. https://doi.org/10.1007/s11218-019-09478-6

Behavioural Insights Team. (2017). *The Behavioural Insights Team: Update Report 2016–17*. Retrieved from https://www.bi.team/publications/the-behavioural-insights-team-update-report-2016-17/

Bettencourt, G. M., Manly, C. A., Kimball, E., & Wells, R. S. (2020). STEM degree completion and first-generation college students: A cumulative disadvantage approach to the outcomes gap. *Review of Higher Education*, *43*, 753–779. https://doi.org/10.1353/rhe.2020.0006

Binning, K. R., & Browman, A. S. (2020). Theoretical, ethical, and policy considerations for conducting social – psychological interventions to close educational achievement gaps. *Social Issues and Policy Review*. https://doi.org/10.1111/sipr12070.12066

Birnbaum, H. J., Stephens, N. M., Townsend, S. S. M., & Hamedani, M. G. (2020). A diversity ideology intervention: Multiculturalism reduces the racial achievement gap. *Social Psychological and Personality Science*, 194855062093822. https://doi.org/10.1177/1948550620938227

Blanchflower, D. G., & Oswald, A. J. (2000). *Well-being over time in Britain and the USA. National Bureau of Economic Research*. NBER Working Paper No. 7487.

Blanton, H., & Ikizer, E. G. (2019). Elegant science narratives and unintended influences: An agenda for the science of science communication. *Social Issues and Policy Review*, *13*, 154–181. https://doi.org/10.1111/sipr12070.12055

Boaler, J. (2008). Promoting "relational equity" and high mathematics achievement through an innovative mixed-ability approach. *British Educational Research Journal*, *34*(2), 167–194. https://doi.org/10.2307/30000003

Borman, G. D. (2017). Advancing values affirmation as a scalable strategy for mitigating identity threats and narrowing national achievement gaps. *Proceedings of the National Academy of Sciences*, *14*(29), 7486–7488. https://doi.org/10.1073/pnas.1708813114

Borman, G. D., Grigg, J., & Hanselman, P. (2016). An effort to close achievement gaps at scale through self-affirmation. *Educational Evaluation and Policy Analysis*, *38*(1), 21–42. https://doi.org/10.3102/0162373715581709

Borman, G. D., Grigg, J., Rozek, C. S., Hanselman, P., & Dewey, N. A. (2018). Self-affirmation effects are produced by school context, student engagement with the intervention, and time: Lessons from a district-wide implementation. *Psychological Science*, *29*(11), 1773–1784.

Boucher, K. L., Fuesting, M. A., Diekman, A. B., & Murphy, M. C. (2017). Can I work with and help others in this field? How communal goals influence interest and participation in stem fields. *Frontiers in Psychology*, *8*, 1–12. https://doi.org/10.3389/fpsyg.2017.00901

Boulay, B., Goodson, B., Olsen, R., Mccormick, R., Darrow, C., Frye, M., Gan, K., Harvill, E., & Sarna, M. (2018). *The investing in innovation fund: Summary of 67 Evaluations Final Report*. https://files.eric.ed.gov/fulltext/ED583834.pdf

Bourdieu, P. (1974). The school as a conservative force: Scholastic and cultural inequalities. *Contemporary Research in the Sociology of Education*, *32*, 32–36.

Bowen, N. K., Wegmann, K. M., & Webber, K. C. (2013). Enhancing a brief writing intervention to combat stereotype threat among middle-school students. *Journal of Educational Psychology*, *105*(2), 427–435. https://doi.org/10.1037/a0031177

Brady, S. T., Cohen, G. L., Jarvis, S. N., & Walton, G. M. (2020). A brief social-belonging intervention in college improves adult outcomes for black Americans. *Science Advances*. https://doi.org/10.1126/sciadv.aay3689

Brady, S. T., Reeves, S. L., Garcia, J., Purdie-Vaughns, V., Cook, J. E., Taborsky-Barba, S., Tomasetti, S., Davis, E. M., & Cohen, G. L. (2016). The psychology of the affirmed learner: Spontaneous self-affirmation in the face of stress. *Journal of Educational Psychology*, *108*(3), 353–373. https://doi.org/10.1037/edu0000091

Brannon, T. N., Higginbotham, G. D., & Henderson, K. (2017). Class advantages and disadvantages are not so Black and White: Intersectionality impacts rank and selves. *Current Opinion in Psychology*, *18*, 117–122. https://doi.org/10.1016/j.copsyc.2017.08.029

Branscombe, N. R., Ellemers, N., Spears, R., & Doosje, B. (1999). The context and content of social identity threat. In N. Ellemers, R. Spears, & B. Doosje (Eds.), *Social identity: Context, commitment, content*. Oxford, UK: Blackwell Science.

Bratter, J. L., Rowley, K. J., & Chukhray, I. (2016). Does a self-affirmation intervention reduce stereotype threat in Black and Hispanic high schools? *Race and Social Problems*, *8*(4), 340–356. https://doi.org/10.1007/s12552-016-9187-4

Britton, J., Dearden, L., van der Erve, L., & Waltmann, B. (2020). The impact of undergraduate degrees on lifetime earnings. https://www.ifs.org.uk/publications/14729

Broda, M., Yun, J., Schneider, B., Yeager, D. S., Walton, G. M., & Diemer, M. A. (2018). Reducing inequality in academic success for incoming college students: A randomized trial of growth mindset and belonging interventions. *Journal of Research on Educational Effectiveness*, *11*(3), 317–338. https://doi.org/10.1080/19345747.2018.1429037

Brooks, C., Gardner, J., & Chen, K. (2018). How gender cues in educational video impact participation and retention. In *Proceedings of International Conference of the Learning Sciences, ICLS* 3 (June), pp. 1835–1842.

Broughton, N. (2013). *In the balance: The STEM human capital crunch*. Retrieved from http://www.smf.co.uk/wp-content/uploads/2013/03/Publication-In-The-Balance-The-STEM-human-capital-crunch.pdf

Brown, R. P., & Day, E. A. (2006). The difference isn't black and white: Stereotype threat and the race gap on Raven's advanced progressive matrices. *Journal of Applied Psychology*, *91*(4), 979–985. https://doi.org/10.1037/0021-9010.91.4.979

Burgess, S., & Greaves, E. (2013). Test scores, subjective assessment, and stereotyping of ethnic minorities. *Journal of Labor Economics*, *31*, 535–576. https://doi.org/10.1086/669340

Burgess, S., Greaves, E., & Vignoles, A. (2020). School places: A fair choice? In *Educational Review*. Retrieved from https://dera.ioe.ac.uk/35131/1/School-Places.pdf

Butera, F., Batruch, A., Autin, F., Mugny, G., Quiamzade, A. (2021). Teaching as social influence: Empowering teachers to become agents of social change. *Social Issues and Policy Review*.

Bynner, J. M., & Ashford, S. (1994). Politics and participation: Some antecedents of young people's attitudes to the political system and political activity. *European Journal of Social Psychology*, *24*, 223–236. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/ejsp.2420240202/abstract

Campbell, S., Macmillan, L., Wyness, G., Bryson, A., Stokes, L., & Wilkinson, D. (2019). *Mismatch in higher education: prevalence, drivers and outcomes*. Retrieved from https://www.nuffieldfoundation.org/wp-content/uploads/2019/11/Wyness-42856-MPO-Final-Nov19.pdf

Canning, E. A., Lacosse, J., Kroeper, K. M., & Murphy, M. C. (2019a). Feeling like an imposter: The effect of perceived classroom competition on the daily psychological experiences of first-generation college students. *Social Psychological and Personality Science*, *11*, 647–657. https://doi.org/10.1177/1948550619882032

Canning, E. A., Priniski, S. J., & Harackiewicz, J. M. (2019b). Unintended consequences of framing a utility-value intervention in two-year colleges. *Learning and Instruction*, *62*, 37–48. https://doi.org/10.1016/j.learninstruc.2019.05.001

Card, D. (1999). The causal effect of education on earnings. *Handbook of Labor Economics*, *3*, 1801–1863. https://doi.org/10.1016/S1573-4463(99)03011-4

Cascio, E. U., & Staiger, D. O. (2012). *Knowledge, Tests, and Fadeout in Educational Interventions*. NBER Working Paper No. 18038. National Bureau of Economic Research.

Cataldi, E. F., Bennett, C. T., Chen, X., & Simone, S. A. (2018). *First-generation students: College access, persistence, and postbachelor's outcomes*. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2018421

Celeste, L., Baysu, G., Phalet, K., Meeussen, L., & Kende, J. (2019). Can school diversity policies reduce belonging and achievement gaps between minority and majority youth? Multiculturalism, color-blindness, and assimilationism assessed. *Personality and Social Psychology Bulletin*, *45*(11), 1603–1618. https://doi.org/10.1177/0146167219838577

Chen, X., & Soldner, M. (2014). *STEM attrition: College students' paths into and out of STEM fields*. Retrieved from https://eric.ed.gov/?id=ED544470

Cheryan, S., Plaut, V. C., Davies, P. G., & Steele, C. M. (2009). Ambient belonging: How stereotypical cues impact gender participation in computer science. *Journal of Personality and Social Psychology*, *97*(6), 1045–1060. https://doi.org/10.1037/a0016239

Chu, H., & Brown, C. S. (2017). Stereotype threat among Latino school age children. *International Journal of Social Science and Humanity*, *7*(5), 278–281. https://doi.org/10.18178/ijssh.2017.7.5.834

Cohen, G. L., & Garcia, J. (2008). Identity, belonging, and achievement: A model, interventions, implications. *Current Directions in Psychological Science*, *17*(6), 365–369.

Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *Science*, *313*(5791), 1307–1310. https://doi.org/10.1126/science.1128317

Cohen, G. L., Garcia, J., & Goyer, J. P. (2018). Turning point: Targeted, tailored and timely psychological intervention. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (2nd ed., pp. 657–686). New York, NY: Guilford Press.

Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science*, *324*(5925), 400–403. https://doi.org/10.1126/science.1170769

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, *65*, 333–371. https://doi.org/10.1146/annurev-psych-010213-115137

Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing critical feedback across the racial divide. *Personality and Social Psychology Bulletin*, *25*(10), 1302–1318. https://doi.org/10.1177/0146167299258011

Collier, P. J., & Morgan, D. L. (2008). "Is that paper really due today?": Differences in first-generation and traditional college students' understandings of faculty expectations. *Higher Education*, *55*, 425–446. https://doi.org/10.1007/sl0734-007-9065-5

Connolly, P., Taylor, B., Francis, B., Archer, L., Hodgen, J., Mazenod, A., & Tereshchenko, A. (2019). The misallocation of students to academic sets in maths: A study of secondary schools in England. *British Educational Research Journal*, *45*(4), 873–897. https://doi.org/10.1002/berj.3530

Cook, J. E., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. (2012). Chronic threat and contingent belonging: Protective benefits of values affirmation on identity development. *Journal of Personality and Social Psychology*, *102*(3), 479–496. https://doi.org/10.1037/a0026312

Croizet, J., & Claire, T. (1998). Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low socioeconomic backgrounds. *Personality and Social Psychology Bulletin*, *24*(6), 588–594. https://doi.org/10.1177/0146167298246003

Danaher, K., & Crandall, C. S. (2008). Stereotype threat in applied settings re-examined. *Journal of Applied Social Psychology*, *38*(6), 1639–1655. https://doi.org/10.1111/j.1559-1816.2008.00362.x

Dasgupta, N. (2011). Ingroup experts and peers as social vaccines who inoculate the self-concept: The stereotype inoculation model. *Psychological Inquiry*, *22*(4), 231–246. https://doi.org/10.1080/1047840X.2011.607313

de Jong, E. M., Jellesma, F. C., Koomen, H. M. Y., & de Jong, P. F. (2016). A values-affirmation intervention does not benefit negatively stereotyped immigrant students in the Netherlands. *Frontiers in Psychology*, *7*(May), 1–20. https://doi.org/10.3389/fpsyg.2016.00691

Dee, T. S. (2004). Teachers, race, and student achievement in a randomized experiment. *Review of Economics and Statistics*, *86*(1), 195–210. https://doi.org/10.1162/003465304323023750

Dee, T. S. (2015). Social identity and achievement gaps: Evidence from an affirmation intervention. *Journal of Research on Educational Effectiveness*, *8*, 149–168. https://doi.org/10.1080/19345747.2014.906009

Deemer, E. D., Lin, C., & Soto, C. (2016). Stereotype threat and women's science motivation: Examining the disidentification effect. *Journal of Career Assessment*, *24*(4), 637–650. https://doi.org/10.1177/1069072715616064

Demie, F., & Lewis, K. (2011). White working class achievement: An ethnographic study of barriers to learning in schools. *Educational Studies*, *37*(3), 245–264. https://doi.org/10.1080/03055698.2010.506341

Department for Education. (2019). *GCSE results ('Attainment 8') - GOV.UK Ethnicity facts and figures*.

Department for Education. (2020). *Key Stage 4 Performance, 2019 (revised)*. Retrieved from https://www.gov.uk/government/statistics/key-stage-4-performance-2019-revised

Derks, B., Van Laar, C., & Ellemers, N. (2007). The beneficial effects of social identity protection on the performance motivation of members of devalued groups. *Social Issues and Policy Review*, *1*(1), 217–256. https://doi.org/10.1111/j.1751-2409.2007.00008.x

Désert, M., Préaux, M., & Jund, R. (2009). So young and already victims of stereotype threat: Socio-economic status and performance of 6 to 9 years old children on Raven's progressive matrices. *European Journal of Psychology of Education*, *XXIV*, 207–218. http://link.springer.com/article/10.1007/BF03173012

DiTomaso, N. (2015). Racism and discrimination versus advantage and favoritism: Bias for versus bias against. *Research in Organizational Behavior*, *35*, 57–77. https://doi.org/10.1016/j.riob.2015.10.001

Dittmann, A. G., Stephens, N. M., & Townsend, S. S. M. M. (2020). Achievement is not class-neutral: Working together benefits people from working-class contexts. *Journal of Personality and Social Psychology*. https://doi.org/10.1037/pspa0000194

Dover, T. L., Kaiser, C. R., & Major, B. (2020). Mixed signals: The unintended effects of diversity initiatives. *Social Issues and Policy Review*, *14*(1), 152–181. https://doi.org/10.1111/sipr12070.12059

Downey, D. B., & Hippel, P. T. Von. (1998). Are schools the great equalizer ? Cognitive inequality during the summer months and the school year. *American Sociological Review*, *69*, 613–635.

Dunne, M., Humphreys, S., Dyson, A., Sebba, J., Gallannaugh, F., & Muijs, D. (2011). The teaching and learning of pupils in low-attainment sets. *Curriculum Journal*, *22*(4), 485–513. https://doi.org/10.1080/09585176.2011.627206

Dweck, C. S., & Yeager, D. S. (2019). Mindsets: A view from two eras. *Perspectives on Psychological Science*, *14*, 481–496. https://doi.org/10.1177/1745691618804166

Easterbrook, M. J., Hadden, I. R., & Nieuwenhuis, M. (2019a). Identities in context: How social class shapes inequalities in education. In J. Jetten & K. Peters (Eds.), *The social psychology of inequality* (pp. 103–121). Cham, Switzerland: Springer Nature Switzerland. https://doi.org/10.1007/978-3-030-28856-3_7

Easterbrook, M. J., Harris, P. R., & Sherman, D. K. (2020a). Self-affirmation theory in educational contexts: Introduction to the Special Issue of the Journal of Social Issues. Manuscript submitted for publication.

Easterbrook, M. J., Kuppens, T., & Manstead, A. S. R. (2015). The education effect: Higher educational qualifications are robustly associated with beneficial personal and socio-political outcomes. *Social Indicators Research*, *126*(3), 1261–1298. https://doi.org/10.1007/s11205-015-0946-1

Easterbrook, M. J., Nieuwenhuis, M., Fox, K., Harris, P. R., & Banerjee, R. A. (2020b). Why do pupils from poorer backgrounds do worse in education? the roles of belonging, identity compatibility, and school context in explaining the social class achievement gap. Manuscript submitted for publication.

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*(3), 573–598. https://doi.org/10.1037/0033-295X.109.3.573

Education Endowment Foundation. (2015). *Setting or streaming, 2015*. Retrieved from https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/setting-or-streaming/

Education Endowment Foundation. (2018). *Sutton Trust-EEF teaching and learning toolkit & EEF early years toolkit: Technical appendix and process manual*. Retrieved from https://educationendowmentfoundation.org.uk/public/files/Toolkit/Toolkit_Manual_2018.pdf

Education Endowment Foundation. (2019). *The EEF guide to the pupil premium*. Retrieved from https://educationendowmentfoundation.org.uk/public/files/Publications/Pupil_Premium_Guidance_iPDF.pdf

Egalite, A. J., Kisida, B., & Winters, M. A. (2015). Representation in the classroom: The effect of own-race teachers on student achievement. *Economics of Education Review*, *45*, 44–52. https://doi.org/10.1016/j.econedurev.2015.01.007

Ellemers, N., & van Laar, C. (2010). Individual mobility. In *The SAGE handbook of prejudice, stereotyping and discrimination* (pp. 561–576). London, UK: Sage. https://doi.org/10.4135/9781446200919.n34

Elmore, K. C., & Oyserman, D. (2012). If "we" can succeed, "I" can too: Identity-based motivation and gender in the classroom. *Contemporary Educational Psychology*, *37*(3), 176–185. https://doi.org/10.1016/j.cedpsych.2011.05.003

Equality Trust. (2016). *A house divided: How unaffordable housing drives UK inequality*. Retrieved from https://www.equalitytrust.org.uk/resource/house-divided-how-unaffordable-housing-drives-uk-inequality

Evans, G. (2006). *Educational failure and working class White children in Britain*. London: Palgrave Macmillan.

Farrell, L., & McHugh, L. (2017). Examining gender-STEM bias among STEM and non-STEM students using the Implicit Relational Assessment Procedure (IRAP). *Journal of Contextual Behavioral Science*, *6*(1), 80–90. https://doi.org/10.1016/j.jcbs.2017.02.001

Ferrer, R. A., & Cohen, G. L. (2018). Reconceptualizing self-affirmation with the "trigger and channel" framework: Lessons from the health domain. *Personality and Social Psychology Bulletin*, *23*(3), 285–304. https://doi.org/10.1177/1088868318797036

Foster, D., & Long, R. (2020). *The pupil premium: Briefing paper*. In House of Commons Library. Retrieved from https://commonslibrary.parliament.uk/research-briefings/sn06700/

Francis, B. (2020). Chief executive's letter: School closures - the disadvantage gap may widen, but there are practical steps we can take to minimise it. Retrieved from https://educationendowmentfoundation.org.uk/news/chief-executives-letter-school-closures-the-disadvantage-gap-may-widen-but-there-are-practical-steps-we-can-take-to-minimise-it/

Francis, B., Connolly, P., Archer, L., Hodgen, J., Mazenod, A., Pepper, D., Sloan, S., Taylor, B., Tereshchenko, A., & Travers, M. C. (2017). Attainment grouping as self-fulfilling prophesy? A mixed methods exploration of self-confidence and set level among Year 7 students. *International Journal of Educational Research*, *86*, 96–108. https://doi.org/10.1016/j.ijer.2017.09.001

Francis, B., Craig, N., Hodgen, J., Taylor, B., Tereshchenko, A., Connolly, P., & Archer, L. (2020). The impact of tracking by attainment on pupil self-confidence over time: Demonstrating the accumulative impact of self-fulfilling prophecy. *British Journal of Sociology of Education*, *41*(5), 626–642. https://doi.org/10.1080/01425692.2020.1763162

Francis, B., Hodgen, J., Craig, N., Taylor, B., Archer, L., Mazenod, A., Tereshchenko, A., & Connolly, P. (2019a). Teacher "quality" and attainment grouping: The role of within-school teacher deployment in social and educational inequality. *Teaching and Teacher Education*, *77*, 183–192. https://doi.org/10.1016/j.tate.2018.10.001

Francis, B., Hodgen, J., Tereshchenko, A., & Archer, L. (2018). *Dos and Don'ts of attainment grouping*. UCL Institute of Education. Retrieved from https://discovery.ucl.ac.uk/id/eprint/10110123/

Francis, B., Taylor, B., & Tereshchenko, A. (2019b). *Reassessing "ability" grouping. improving practice for equity and attainment* (1st ed.). Routledge.

Gándara, P., & Contreras, F. (2009). *The Latino education crisis: The consequences of failed social policies*. Harvard University Press.

Gibson, M. A. (1987). The school performance of immigrant minorities: A comparative view. *Anthropology & Education Quarterly*, *18*(4), 262–275. https://doi.org/10.1525/aeq.1987.18.4.04×0018r

Gibson, D. E., & Cordova, D. I. (1999). Women's and men's role models: The importance of exemplars. In A. J. Murrell, F. J. Crosby, & R. J. Ely (Eds.), *Mentoring dilemmas: Developmental relationships within multicultural organizations. Applied social research* (pp. 121–141). Lawrence Erlbaum Associates.

Gonzales, P. M., Blanton, H., & Williams, K. J. (2002). The effects of stereotype threat and double-minority status on the test performance of Latino women. *Personality & Social Psychology Bulletin*, *28*(5), 659–670.

Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied Developmental Psychology*, *24*(6), 645–662. https://doi.org/10.1016/j.appdev.2003.09.002

Goudeau, S., & Croizet, J. C. (2016). Hidden advantages and disadvantages of social class. *Psychological Science*, *28*, 162–170. https://doi.org/10.1177/0956797616676600

Goyer, J. P., Garcia, J., Purdie-Vaughns, V., Binning, K. R., Cook, J. E., Reeves, S. L., Apfel, N., Taborsky-Barba, S., Sherman, D. K., & Cohen, G. L. (2017). Self-affirmation facilitates minority middle schoolers' progress along college trajectories. *Proceedings of the National Academy of Sciences*, *114*(29), 7594–7599. https://doi.org/10.1073/pnas.1617923114

Hadden, I. R., Easterbrook, M. J., Nieuwenhuis, M., Fox, K. J., & Dolan, P. (2019). Self-affirmation reduces the socioeconomic attainment gap in schools in England. *British Journal of Educational Psychology*, *90*, 517–536. https://doi.org/10.1111/bjep.12291

Hall, C. C., Zhao, J., & Shafir, E. (2014). Self-affirmation among the poor: Cognitive and behavioral implications. *Psychological Science*, *25*(2), 619–625. https://doi.org/10.1177/0956797613510949

Hamm, J. M., Perry, R. P., Chipperfield, J. G., Hladkyj, S., Parker, P. C., & Weiner, B. (2020). Reframing achievement setbacks: A motivation intervention to improve 8-year graduation rates for students in science, technology, engineering, and mathematics (STEM) fields. *Psychological Science*, *31*, 623–633. https://doi.org/10.1177/0956797620904451

Hanselman, P., Rozek, C. S., Grigg, J., & Borman, G. D. (2017). New evidence on self-affirmation effects and theorized success of heterogeneity from large-scale replications. *Journal of Educational Psychology*, *109*(3), 405–424.

Hansen, Z., Owan, H., & Pan, J. (2006). The impact of group diversity on performance and knowledge spill over – an experiment in a college classroom. *National Bureau of Economic Research*, *15*(May), 58. https://doi.org/10.16258/j.cnki.1674-5906.2006.01.022

Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Priniski, S. J., & Hyde, J. S. (2016). Closing achievement gaps with a utility-value intervention: Disentangling race and social class. *Journal of Personality and Social Psychology*, *111*(5). https://doi.org/10.1037/pspp0000075

Harackiewicz, J. M., & Priniski, S. J. (2018). Improving student outcomes in higher education: The science of targeted intervention. *Annual Review of Psychology*, *69*(1), 409–435. https://doi.org/10.1146/annurev-psych-122216-011725

Harackiewicz, J. M., Rozek, C. S., Hulleman, C. S., & Hyde, J. S. (2012). Helping parents to motivate adolescents in mathematics and science. *Psychological Science*, *23*(8), 899–906. https://doi.org/10.1177/0956797611435530

Harackiewicz, J. M., Tibbetts, Y., Canning, E., & Hyde, J. S. (2014). Harnessing values to promote motivation in education. *Advances in Motivation and Achievement*, *18*, 71–105.

Hartley, B. L., & Sutton, R. M. (2013). A stereotype threat account of boys' academic underachievement. *Child Development*, *84*(5), 1716–1733. https://doi.org/10.1111/cdev.12079

Hayes, L., Zinner, L., Wise, J., & Carton, J. (2019). Effects of a self-affirmation intervention on grades in middle school and first-year college students. *Journal of Articles in Support of the Null Hypothesis*, *16*, 57–80.

Hecht, C. A., Priniski, S. J., & Harackiewicz, J. M. (2019). Understanding long-term effects of motivation interventions in a changing world. In *Motivation in education at a time of global change*. Emerald Publishing.

Heckman, J. J. (2011). The economics of inequality: The value of early childhood education. *American Educator*, *35*, 31–36. Retrieved from http://files.eric.ed.gov/fulltext/EJ920516.pdf

Helliwell, J. F., & Putnam, R. D. (2007). Education and social capital. *Eastern Economic Journal*, *33*(1), 1–19. https://doi.org/10.1057/eej.2007.1

Hernandez, D., Rana, S., Rao, A., & Usselman, M. (2017). Dismantling stereotypes about Latinos in STEM. *Hispanic Journal of Behavioral Sciences*. https://doi.org/10.1177/0739986317731100

Hieshima, J. A., & Schneider, B. (1994). Intergenerational effects on the cultural and cognitive socialization of third- and fourth-generation Japanese Americans. *Journal of Applied Developmental Psychology*, *15*(3), 319–327. https://doi.org/10.1016/0193-3973(94)90034-5

Higher Education Statistics Agency. (2020). *Higher education student statistics: UK, 2018/19*. Retrieved from https://www.hesa.ac.uk/news/16-01-2020/sb255-higher-education-student-statistics/qualifications

Horn, L., Nevill, S., & Griffith, J. (2006). *Profile of undergraduates in U.S. postsecondary education institutions: 2003–04*. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006184

Horvat, E. M., Weininger, E. B., & Lareau, A. (2003). From social ties to social capital: Class differences in the relations between schools and parent networks. *American Educational Research Journal*, *40*(2), 319–351. https://doi.org/10.3102/00028312040002319

House of Commons Work and Pensions Committee. (2004). *Child poverty in the UK: Second report of session 2003–04* (Vol. 1). Retrieved from https://publications.parliament.uk/pa/cm200304/cmselect/cmworpen/85/85.pdf

Hout, M., & DiPrete, T. A. (2006). What we have learned: RC28's contributions to knowledge about social stratification. *Research in Social Stratification and Mobility*, *24*(1), 1–20. https://doi.org/10.1016/j.rssm.2005.10.001

Howard, K. E., & Anderson, K. A. (2010). Stereotype threat in middle school: The effects of prior performance on expectancy and test performance. *Middle Grades Research Journal*, *5*(3), 119–137.

Huat See, B., & Gorard, S. (2015). The role of parents in young people's education—a critical review of the causal evidence. *Oxford Review of Education*, *41*(3), 346–366. https://doi.org/10.1080/03054985.2015.1031648

Hutchings, M., & Archer, L. (2001). 'Higher than Einstein': Constructions of going to university among working-class non-participants. *Research Papers in Education*, *16*(1), 69–91. https://doi.org/10.1080/02671520010011879

Hutchinson, J., Bonetti, S., Crenna-Jennings, W., & Akhal, A. (2019). *Education in England: Annual Report 2019*. Retrieved from https://epi.org.uk/publications-and-research/annual-report-2019/

Hyde, J. S., Canning, E. A., Rozek, C. S., Clarke, E., Hulleman, C. S., & Harackiewicz, J. M. (2017). The role of mothers' communication in promoting motivation for math and science course-taking in high school. *Journal of Research on Adolescence*, *27*(1), 49–64. https://doi.org/10.1111/jora.12253

Inzlicht, M., Tullett, A. M., & Gutsell, J. N. (2012). Stereotype threat spillover: The short- and long-term effects of coping with threats to social identity. In M. Inzlicht & T. Schmader (Eds.), *Stereotype threat: Theory, process, and application* (pp. 107–123). Oxford University Press.

Inzlicht, M., Tullett, A. M., Legault, L., & Kang, S. K. (2011). Lingering effects: Stereotype threat hurts more than you think. *Social Issues and Policy Review*, *5*, 227–256. https://doi.org/10.1111/j.1751-2409.2011.01031.x

Jerrim, J. (2017). *Extra time—Private tuition and out-of-school study, new international evidence*. Retrieved from https://www.suttontrust.com/wp-content/uploads/2017/09/Extra-time-report_FINAL.pdf

Jerrim, J., Chmielewski, A. K., & Parker, P. (2015). Socioeconomic inequality in access to high-status colleges: A cross-country comparison. *Research in Social Stratification and Mobility*, *42*, 20–32. https://doi.org/10.1016/j.rssm.2015.06.003

Johns, M., Schmader, T., & Martens, A. (2005). Knowing is half the battle: Teaching stereotype threat as a means of improving women's math performance. *Psychological Science*, *16*(3), 175–179. https://doi.org/10.1111/j.0956-7976.2005.00799.x

Jones, E. O., & Huey, S. J. (2020). Affirmation and majority students: Does affirmation impair academic performance in white males? *Basic and Applied Social Psychology*, *42*(3), 176–191. https://doi.org/10.1080/01973533.2020.1732389

Jones, O. (2016). *Chavs: The demonization of the working class* (1st ed.). Verso Books.

Jordan, C. (1984). Cultural compatibility and the education of Hawaiian children: Implications for mainland educators. *Educational Research Quarterly*, *8*(4), 59–71. https://psycnet.apa.org/record/1985-21312-001

Kamans, E., Gordijn, E. H., Oldenhuis, H., & Otten, S. (2009). What I think you see is what you get: Influence of prejudice on assimilation to negative meta-stereotypes among Dutch Moroccan teenagers. *European Journal of Social Psychology*, *39*, 842–851. https://doi.org/10.1002/ejsp

Kinias, Z., & Sim, J. (2016). Facilitating women's success in business: Interrupting the process of stereotype threat through affirmation of personal values. *Journal of Applied Psychology*, *101*(8). https://doi.org/10.1037/apl0000139

Kirby, P. (2016). *Leading people 2016: The educational backgrounds of the UK professional elite* (pp. 1–53). Retrieved from Retrieved from https://www.suttontrust.com/wp-content/uploads/2016/02/Leading-People_Feb16.pdf

Kissane, R. (2003). What's need got to do with it? Barriers to use of nonprofit social services. *Journal of Sociology and Social Welfare*, *30*(2), 127–148.

Kizilcec, R. F., & Saltarelli, A. J. (2019). Psychologically inclusive design: Cues impact women's participation in stem education. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. (pp. 1–10). ACM Press. https://doi.org/10.1145/3290605.3300704

Kizilcec, R. F., Saltarelli, A. J., Reich, J., & Cohen, G. L. (2017). Closing global achievement gaps in MOOCs. *Science*, *355*(6322), 251–252. https://doi.org/10.1126/science.aag2063

Konan, P. N. D., Chatard, A., Selimbegović, L., & Mugny, G. (2010). Cultural diversity in the classroom and its effects on academic performance : A cross-national perspective. *Social Psychology*, *41*(4), 230–237. https://doi.org/10.1027/1864-9335/a000031

Kraft, M. A. (2020). Interpreting effect sizes of education interventions. *Educational Researcher*, *49*(4), 241–253. https://doi.org/10.3102/0013189×20912798

Krivo, L. J., & Kaufman, R. L. (2004). Housing and wealth inequality: Racial-ethnic differences in home equity in the United States. *Demography*, *41*, 585–605.

Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020). Projecting the potential impacts of COVID-19 school closures on academic achievement. Ed Working Paper: 20–226. Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/cdrv-yw05

Kuppens, T., Spears, R., Manstead, A. S. R., Spruyt, B., & Easterbrook, M. J. (2017). Educationism and the irony of meritocracy: Negative attitudes of higher educated people towards the less educated. *Journal of Experimental Social Psychology*, *76*, 429–447. https://doi.org/10.1016/j.jesp.2017.11.001

Lareau, A. (1987). Social class differences in family school relationships: The importance of cultural capital. *Sociology of Education*, *60*, 73–85.

Lareau, A. (2002). Invisible inequality: Social class and childrearing in black families and white families. *American Sociological Review*, *67*, 747–776. https://doi.org/10.2307/3088916

Lawner, E. K., Quinn, D. M., Camacho, G., Johnson, B. T., & Pan-Weisz, B. (2019). Ingroup role models and underrepresented students' performance and interest in STEM: A meta-analysis of lab and field studies. *Social Psychology of Education*, *22*(5), 1169–1195. https://doi.org/10.1007/s11218-019-09518-1

Lee, J., Bong, M., & Kim, S. il. (2014). Interaction between task values and self-efficacy on maladaptive achievement strategy use. *Educational Psychology*, *34*, 538–560. https://doi.org/10.1080/01443410.2014.895296

Lens, V., Nugent, M., & Wimer, C. (2018). Asking for help: A qualitative study of barriers to help seeking in the private sector. *Journal of the Society for Social Work and Research*, *9*(1), 107–130. https://doi.org/10.1086/696356

Leslie, L. M., & Mayer, D. M. (2014). The stigma of affirmative action: A stereotyping-based theory and meta-analytic test of the consequences for performance. *The Academy of Management Journal*, *57*, 964–989. https://doi.org/10.5465/amj.2011.0940

Leyens, J.-P., Desert, M., Croizet, J., & Darcis, C. (2000). Stereotype threat: Are lower status and history of stigmatization preconditions of stereotype threat? *Personality and Social Psychology Bulletin*, *26*(10), 1189–1199. https://doi.org/10.1177/0146167200262002

Lindqvist, A., Björklund, F., & Bäckström, M. (2017). The perception of the poor: Capturing stereotype content with different measures. *Nordic Psychology*, *69*, 231–247. https://doi.org/10.1080/19012276.2016.1270774

Lipsey, M. W., Puzio, K., Yun, C., Hebert, M. A., Steinka-Fry, K., Cole, M. W., Roberts, M., Anthony, K. S., & Busick, M. D. (2012). *Translating the statistical representation of the*

effects of education interventions into more readily interpretable forms. Retrieved from https://ies.ed.gov/ncser/pubs/20133000/

Liu, C.-H., & Huang, P. S. (2019). Beneficial effects of self-affirmation on motivation and performance reduced in students hungry for others' approval. *Contemporary Educational Psychology*, *56*, 1–13. https://doi.org/10.1016/j.cedpsych.2018.10.008

LoGerfo, L., Nichols, A., & Reardon, S. F. (2006). *Achievement gains in elementary and high schools*. The Urban Institute. http://www.urban.org/url.cfm?ID=411290

Lortie-Forgues, H., & Inglis, M. (2019). Rigorous large-scale educational RCTs are often uninformative: Should we be concerned? *Educational Researcher*, *48*, 158–166. https://doi.org/10.3102/0013189×19832850

Lokhande, M., & Müller, T. (2019). Double jeopardy—Double remedy? The effectiveness of self-affirmation for improving doubly disadvantaged students' mathematical performance. *Journal of School Psychology*, *75*(July), 58–73. https://doi.org/10.1016/j.jsp.2019.07.006

Lyons, E. M. L., Simms, N., Begolli, K. N., & Richland, L. E. (2018). Stereotype threat effects on learning from a cognitively demanding mathematics lesson. *Cognitive Science*, *42*(2), 678–690. https://doi.org/10.1111/cogs.12558

Manstead, A. S. R., Easterbrook, M. J., & Kuppens, T. (2020). The socioecology of social class. *Current Opinion in Psychology*, *32*, 95–99. https://doi.org/10.1016/j.copsyc.2019.06.037

March, D. S., & Graham, R. (2015). Exploring implicit ingroup and outgroup bias toward Hispanics. *Group Processes and Intergroup Relations*, *18*(1), 89–103. https://doi.org/10.1177/1368430214542256

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*(2), 224. https://doi.org/10.1037//0033-295X.98.2.224

Markus, H. R., & Stephens, N. M. (2017). Editorial overview: Inequality and social class: The psychological and behavioral consequences of inequality and social class: A theoretical integration. *Current Opinion in Psychology*, *18*, iv–xii. https://doi.org/10.1016/j.copsyc.2017.11.001

Martiny, S. E., Roth, J., Jelenec, P., Steffens, M. C., & Croizet, J. C. (2012). When a new group identity does harm on the spot: Stereotype threat in newly created groups. *European Journal of Social Psychology*, *42*(1), 65–71. https://doi.org/10.1002/ejsp.840

Meara, E. R., Richards, S., & Cutler, D. M. (2008). The gap gets bigger: Changes in mortality and life expectancy, by education, 1981–2000. *Health Affairs*, *27*, 350–360. https://doi.org/10.1377/hlthaff.27.2.350

Mello, Z. R., Mallett, R. K., Andretta, J. R., & Worrell, F. C. (2010). Stereotype threat and school belonging in adolescents from diverse racial/ethnic backgrounds. *Journal of At-Risk Issues*, *17*(1), 9–14.

Meyer, F., Yao, E. S., & Meissel, K. (2020). The summer learning effect in writing in New Zealand. *Reading and Writing*, *33*(5), 1183–1210. https://doi.org/10.1007/s11145-019-10003-6

Mijs, J. J. B. (2016). Stratified failure: Educational stratification and students' attributions of their mathematics performance in 24 countries. *Sociology of Education*, *89*(2), 137–153. https://doi.org/10.1177/0038040716636434

Miyake, A., Kost-Smith, L. E., Finkelstein, N. D., Pollock, S. J., Cohen, G. L., & Ito, T. A. (2010). Reducing the gender achievement gap in college science: A classroom study of values affirmation. *Science*, *330*(6008), 1234–1237. https://doi.org/10.1126/science.1195996

Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology*, *75*(1), 33–52. https://doi.org/10.1037/0022-3514.75.1.33

Muntoni, F., & Retelsdorf, J. (2018). Gender-specific teacher expectations in reading—The role of teachers' gender stereotypes. *Contemporary Educational Psychology*, *54*, 212–220. https://doi.org/10.1016/j.cedpsych.2018.06.012

Murphy, M. C., Gopalan, M., Carter, E. R., Emerson, K. T. U., Bottoms, B. L., & Walton, G. M. (2020). A customized belonging intervention improves retention of socially disadvantaged students at a broad-access university. *Science Advances*, *6*(29), eaba4677.

Murphy, M. C., & Zirkel, S. (2015). Race and belonging in school: How anticipated and experienced belonging affect choice, persistence, and performance. *Teachers College Record*, *117*(12), 1–40.

Nation's Report Card. (2019). *Nations Report Card 2019 grade 8 maths and reading*. Retrieved from https://www.nationsreportcard.gov/ndecore/landing

National Science Board. (2019). *Science and engineering indicators 2020: Higher education in science and engineering*. Retrieved from https://ncses.nsf.gov/pubs/nsb20197

Neave, S., Wood, G., May, T., Tortis, M., Kähärä, M., Mellors-Bourne, R., Morgan, R., Desai, M., Halej, J., & Talbot, M. (2018). *Engineering UK 2018: The state of engineering*. Retrieved from https://www.engineeringuk.com/media/156187/state-of-engineering-report-2018.pdf

Nieuwenhuis, M., Manstead, A. S. R., & Easterbrook, M. J. (2019). Accounting for unequal access to higher education: The role of social identity factors. *Group Processes and Intergroup Relations*, *22*(3), 371–389. https://doi.org/10.1177/1368430219829824

Nosek, B. A., Smyth, F. L., Hansen, J. J., Devos, T., Lindner, N. M., Ranganath, K. A., Smith, C. T., Olson, K. R., Chugh, D., Greenwald, A. G., & Banaji, M. R. (2007). Pervasiveness and correlates of implicit attitudes and stereotypes. *European Review of Social Psychology*, *18*(1), 36–88. https://doi.org/10.1080/10463280701489053

O'Brien, L. T., Garcia, D. M., Blodorn, A., Adams, G., Hammer, E., & Gravelin, C. (2019). An educational intervention to improve women's academic STEM outcomes: Divergent effects on well- represented vs. underrepresented minority women. *Cultural Diversity and Ethnic Minority Psychology*, *26*(2), 163–168. https://doi.org/10.1037/cdp0000289

O'Grady, T. (2019). Careerists versus coal-miners: welfare reforms and the substantive representation of social groups in the British Labour Party. *Comparative Political Studies*, *52*(4), 544–578. https://doi.org/10.1177/0010414018784065

O'Sullivan, K., Bird, N., Robson, J., & Winters, N. (2019). Academic identity, confidence and belonging: The role of contextualised admissions and foundation years in higher education. *British Educational Research Journal*, *45*(3), 554–575. https://doi.org/10.1002/berj.3513

OECD. (2015). *Helping immigrant students to succeed at school – and beyond*. Retrieved from https://www.oecd.org/education/Helping-immigrant-students-to-succeed-at-school-and-beyond.pdf

Ofqual. (2020). *Summer 2020 grades for GCSE, AS and A level, extended project qualification and advanced extension award in maths*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/890811/Summer_2020_grades_for_GCSE_AS_A_level_guidance_for_teachers_students_parents_09062020.pdf

Ofsted. (2013). *Unseen children: access and achievement 20 years on: Evidence report*. Retrieved from https://www.gov.uk/government/publications/unseen-children-access-and-achievement-20-years-on

Okagaki, L. (2001). Triarchic model of minority children's school achievement. *Educational Psychologist*, *36*(1), 9–20. https://doi.org/10.1207/S15326985EP3601

Okonofua, J. A., Paunesku, D., & Walton, G. M. (2016). Brief intervention to encourage empathic discipline cuts suspension rates in half among adolescents. *Proceedings of the National Academy of Sciences*, *113*(19), 5221–5226. https://doi.org/10.1073/pnas.1523698113

Oyserman, D., Bybee, D., & Terry, K. (2006). Possible selves and academic outcomes: How and when possible selves impel action. *Journal of Personality and Social Psychology*, *91*(1), 188–204. https://doi.org/10.1037/0022-3514.91.1.188

Oyserman, D., Johnson, E., & James, L. (2011). Seeing the destination but not the path: Effects of socioeconomic disadvantage on school-focused possible self-content and linked behavioral strategies. *Self and Identity : The Journal of the International Society for Self and Identity*, *10*(4), 474–492. https://doi.org/10.1080/15298868.2010.487651

Pansu, P., Régner, I., Max, S., Colé, P., Nezlek, J. B., & Huguet, P. (2016). A burden for the boys: Evidence of stereotype threat in boys' reading performance. *Journal of Experimental Social Psychology*, *65*, 26–30. https://doi.org/10.1016/j.jesp.2016.02.008

Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-set interventions are a scalable treatment for academic underachievement. *Psychological Science*, *26*(6), 784–793. https://doi.org/10.1177/0956797615571017

Perera, N., Treadaway, M., & Johnes, R. (2016). *Education in England: progress and goals*. Retrieved from https://epi.org.uk/publications-and-research/education-england-progress-goals/

Persson, M. (2013). Is the effect of education on voter turnout absolute or relative? A multi-level analysis of 37 countries. *Journal of Elections, Public Opinion & Parties*, *23*(2), 111–133. https://doi.org/10.1080/17457289.2012.747530

Phillips, L. T., Stephens, N. M., & Townsend, S. S. M. (2015). *Access is not enough: Cultural mismatch persists to limit first-generation students' opportunities for achievement throughout college*. https://doi.org/10.1037/pspi0000234

Picho, K., Rodriguez, A., & Finnie, L. (2013). Exploring the moderating role of context on the mathematics performance of females under stereotype threat: A meta-analysis. *Journal of Social Psychology*, *153*(3), 299–333. https://doi.org/10.1080/00224545.2012.737380

Piesch, H., Häfner, I., Gaspard, H., Flunger, B., Nagengast, B., & Harackiewicz, J. M. (2018). Helping parents support adolescents' career orientation: Effects of a parent-based utility-value intervention. *Unterrichtswissenschaft*, *47*, 271–293. https://doi.org/10.1007/s42010-018-0024-x

Protzko, J., & Aronson, J. (2016). Context moderates affirmation effects on the ethnic achievement gap. *Social Psychological and Personality Science*, *7*(6), 500–507. https://doi.org/10.1177/1948550616646426

Quinn, D. M. (2020). Experimental evidence on teachers' racial bias in student evaluation: The role of grading scales. *Educational Evaluation and Policy Analysis*, *42*, 375–392. https://doi.org/10.3102/0162373720932188

Quinn, D. M., Cooc, N., McIntyre, J., & Gomez, C. J. (2016). Seasonal dynamics of academic achievement inequality by socioeconomic status and race/ethnicity: Updating and extending past research with new national data. *Educational Researcher*, *45*(8), 443–453. https://doi.org/10.3102/0013189×16677965

Reay, D., Davies, J., David, M., & Ball, S. J. (2001). Choices of degree or degrees of choice? class, 'race' and the higher education choice process. *Sociology*, *35*(04), 855–874. https://doi.org/10.1017/s0038038501008550

Reeves, S. L., Henderson, M. D., Cohen, G. L., Steingut, R. R., Hirschi, Q., & Yeager, D. S. (2020). Psychological affordances help explain where a self-transcendent purpose intervention improves performance. *Journal of Personality and Social Psychology*. Advance online publication. https://doi.org/10.1037/pspa0000246

Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioural functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology*, *88*(3), 408–422. https://doi.org/10.1037/0022-0663.88.3.408

Rosenthal, R., & Jacobson, L. (1966). Teachers' expectancies: Determinants of pupils' IQ gains. *Psychological Reports*, *19*, 115–118.

Rosenthal, L., Levy, S. R., London, B., Lobel, M., & Bazile, C. (2013). In pursuit of the MD: The impact of role models, identity compatibility, and belonging among undergraduate women. *Sex Roles*, *68*(7–8), 464–473. https://doi.org/10.1007/s11199-012-0257-9

Rozek, C. S., Hyde, J. S., Svoboda, R. C., Hulleman, C. S., & Harackiewicz, J. M. (2015). Gender differences in the effects of a utility-value intervention to help parents motivate adolescents in mathematics and science. *Journal of Educational Psychology*, *107*(1), 195–206. https://doi.org/10.1037/a0036981

Rozek, C. S., Svoboda, R. C., Harackiewicz, J. M., Hulleman, C. S., & Hyde, J. S. (2017). Utility-value intervention with parents increases students' STEM preparation and career pursuit. *Proceedings of the National Academy of Sciences of the United States of America*, *114*(5), 201607386. https://doi.org/10.1073/pnas.1607386114

Sahota, P., Woodward, J., Molinari, R., & Pike, J. (2014). Factors influencing take-up of free school meals in primary-and secondary-school children in England. *Public Health Nutrition*, *17*(6), 1271–1279. https://doi.org/10.1017/S136898001300092X

Schaefer, E. S. (1991). Goals for parent and future-parent education: Research on parental beliefs and behavior. *The Elementary School Journal*, *91*(3), 239–247. https://doi.org/10.1086/461651

Schmitt, M. T., & Branscombe, N. R. (2002). The meaning and consequences of perceived discrimination in disadvantaged and privileged social groups. *European Review of Social Psychology*, *12*(1), 167–199. https://doi.org/10.1080/14792772143000058

Schütte, S., Chastang, J. F., Parent Thirion, A., Vermeylen, G., & Niedhammer, I. (2013). Social differences in self-reported health among men and women in 31 countries in Europe. *Scandinavian Journal of Public Health*, *41*, 51–57. https://doi.org/10.1177/1403494812469854

Schwalbe, M., Chande, R., Barnes, J., O'Reilly, F., Sanders, M., Watson, J., & Cohen, G. (2019). *Values affirmation and UK further education college performance*. Retrieved from https://osf.io/qh9ep

Sherman, D. K., Cohen, G. L., Nelson, L. D., Nussbaum, A. D., Bunyan, D. P., & Garcia, J. (2009). Affirmed yet unaware: Exploring the role of awareness in the process of self-affirmation. *Journal of Personality and Social Psychology*, *97*(5), 745–764. https://doi.org/10.1037/a0015451

Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, S., Tomassetti, S., Nussbaum, A. D., & Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: How self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology*, *104*(4), 591–618. https://doi.org/10.1037/a0031495

Sherman, D. K., Lokhande, M., Müller, T., & Cohen, G. L. (2020). Self-affirmation interventions. In G. M. Walton & A. J. Crum (Eds.), *Handbook of wise interventions: how social-psychological insights can help solve problems*. New York, NY: Guilford Press.

Shnabel, N., Purdie-Vaughns, V., Cook, J. E., Garcia, J., & Cohen, G. L. (2013). Demystifying values-affirmation interventions: Writing about social belonging is a key to buffering against identity threat. *Personality & Social Psychology Bulletin*, *39*(5), 663–676. https://doi.org/10.1177/0146167213480816

Shutts, K., Brey, E. L., Dornbusch, L. A., Slywotzky, N., & Olson, K. R. (2016). Children use wealth cues to evaluate others. *PLoS ONE*, *11*, e0149360. https://doi.org/10.1371/journal.pone.0149360

Singh, K., Chang, M., & Dika, S. (2010). Ethnicity, self-concept, and school belonging: Effects on school engagement. *Educational Research for Policy and Practice*, *9*(3), 159–175. https://doi.org/10.1007/s10671-010-9087-0

Sirin, S. R., & Rogers-Sirin, L. (2005). Components of school engagement among African American adolescents. *Applied Developmental Science*, *9*(1), 5–13. https://doi.org/10.1207/s1532480xads0901_2

Sisk, V. F., Burgoyne, A. P., Sun, J., Butler, J. L., & Macnamara, B. N. (2018). To what extent and under which circumstances are growth mind-sets important to academic achievement? Two meta-analyses. *Psychological Science*, *29*, 549-571. https://doi.org/10.1177/0956797617739704

Slavin, R. E., & Madden, N. A. (2006). Reducing the gap: Success for all and the achievement of African American students. *Journal of Negro Education*, *75*(3), 389–400.

Slavin, R. E., & Madden, N. A. (2011). Measures inherent to treatments in program effectiveness reviews. *Journal of Research on Educational Effectiveness*, *4*(4), 370–380. https://doi.org/10.1080/19345747.2011.558986

Smith, J. L. (2004). Understanding the process of stereotype threat: A review of mediational variables and new performance goal directions. *Educational Psychology Review*, *16*(3), 177–206. https://doi.org/10.1023/B:EDPR.0000034020.20317.89

Smith, J. L., Brown, E. R., Thoman, D. B., & Deemer, E. D. (2015). Losing its expected communal value: How stereotype threat undermines women's identity as research scientists. *Social Psychology of Education*, *18*(3), 443–466. https://doi.org/10.1007/s11218-015-9296-8

Social Mobility Commission. (2017). *State of the Nation 2017: Social mobility in Great Britain*. Retrieved from https://www.gov.uk/government/news/social-mobility-in-great-britain-fifth-state-of-the-nation-report

Spencer, B., & Castano, E. (2007). Social class is dead. Long live social class! Stereotype threat among low socioeconomic status individuals. *Social Justice Research*, *20*(4), 418–432. https://doi.org/10.1007/s11211-007-0047-7

Spencer, S. J., Logel, C., & Davies, P. G. (2016). Stereotype threat. *Annucal Review of Psychology*, *67*, 415–437. https://doi.org/10.1146/annurev-psych-073115-103235

Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, *35*(1), 4–28. https://doi.org/10.1006/jesp.1998.1373

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, *52*(6), 613–629.

Steele, C. M. (2010). *Whistling vivaldi*. New York, NY: W. W. Norton and Company.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual performance of African Americans. *Journal of Personality & Social Psychology*, *69*(5), 797–811. https://doi.org/10.1037/0022-3514.69.5.797

STEM Women. (2020). *Women in STEM | Percentages of women STEM statistics*. Retrieved from https://www.stemwomen.co.uk/blog/2019/09/women-in-stem-percentages-of-women-in-stem-statistics

Stephens, N. M., Dittmann, A. G., & Townsend, S. S. M. (2014a). Social class and models of competence: How gateway institutions disadvantage working-class Americans and how to intervene. In *Handbook of Competence and Motivation (2nd Edition): Theory and Application*. Edited by Elliot, A. J., Dweck, C. S., & Yeager, D. S. Guilford Press; 2017:512–528.

Stephens, N. M., Fryberg, S. A., & Markus, H. R. (2010). When choice does not equal freedom: A sociocultural analysis of agency in working-class American contexts. *Social Psychological and Personality Science*, *2*(1), 33–41. https://doi.org/10.1177/1948550610378757

Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012a). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology*, *102*(6), 1178–1197. https://doi.org/10.1037/a0027143

Stephens, N. M., Hamedani, M. G., & Destin, M. (2014b). Closing the social-class achievement gap: A difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychological Science*, *25*(4), 943–953. https://doi.org/10.1177/0956797613518349

Stephens, N. M., Hamedani, M. G., & Townsend, S. S. M. (2019). Difference matters: Teaching students a contextual theory of difference can help them succeed. *Perspectives on Psychological Science*, *14*, 156–174. https://doi.org/10.1177/1745691618797957

Stephens, N. M., Markus, H. R., & Fryberg, S. A. (2012b). Social class disparities in health and education: Reducing inequality by applying a sociocultural self-model of behavior. *Psychological Review*, *119*(4), 723–744. https://doi.org/10.1037/a0029028

Stephens, N. M., Townsend, S. S. M., Hamedani, M. G., Destin, M., & Manzo, V. (2015). A difference-education intervention equips first-generation college students to thrive in the face of stressful college situations. *Psychological Science*. https://doi.org/10.1177/0956797615593501

Stephens, N. M., Townsend, S. S. M., Markus, H. R., & Phillips, L. T. (2012c). A cultural mismatch: Independent cultural norms produce greater increases in cortisol and more negative emotions among first-generation college students. *Journal of Experimental Social Psychology*, *48*(6), 1389–1393. https://doi.org/10.1016/j.jesp.2012.07.008

Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. A. (2011). STEMing the tide: Using ingroup experts to inoculate women's self-concept in science, technology, engineering, and mathematics (STEM). *Journal of Personality and Social Psychology*, *100*(2), 255–270. https://doi.org/10.1037/a0021385

Strand, S. (2014). Ethnicity, gender, social class and achievement gaps at age 16: Intersectionality and "getting it" for the white working class. *Research Papers in Education*, *29*(2), 131–171. https://doi.org/10.1080/02671522.2013.767370

Stubager, R. (2008). Education effects on authoritarian-libertarian values: A question of socialization. *The British Journal of Sociology*, *59*(2), 327–350. https://doi.org/10.1111/j.1468-4446.2008.00196.x

Sutton Trust. (2019). *School funding and the Pupil Premium*. Retrieved from https://www.suttontrust.com/our-research/school-funding-and-pupil-premium-2019/

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks/Cole Publishing Company.

Taylor, B., Francis, B., Craig, N., Archer, L., Hodgen, J., Mazenod, A., Tereshchenko, A., & Pepper, D. (2019). Why is it difficult for schools to establish equitable practices in allocating students

to attainment "sets"? *British Journal of Educational Studies*, *67*, 5–24. https://doi.org/10.1080/00071005.2018.1424317

Taylor, V. J., & Walton, G. M. (2011). Stereotype threat undermines academic learning. *Personality and Social Psychology Bulletin*, *37*(8), 1055–1067. https://doi.org/10.1177/0146167211406506

Tereshchenko, A., Francis, B., Archer, L., Hodgen, J., Mazenod, A., Taylor, B., Pepper, D., & Travers, M. C. (2019). Learners' attitudes to mixed-attainment grouping: Examining the views of students of high, middle and low attainment. *Research Papers in Education*, *34*, 425–444. https://doi.org/10.1080/02671522.2018.1452962

Thoman, D. B., Smith, J. L., Brown, E. R., Chase, J., & Lee, J. Y. K. (2013). Beyond performance: A motivational experiences model of stereotype threat. *Educational Psychology Review*, *25*(2), 211–243. https://doi.org/10.1007/s10648-013-9219-1

Tibbetts, Y., Harackiewicz, J. M., Canning, E. A., Boston, J. S., Priniski, S. J., & Hyde, J. S. (2016a). Affirming independence: Exploring mechanisms underlying a values affirmation intervention for first-generation students. *Journal of Personality and Social Psychology*, *110*(5), 635–659. https://doi.org/10.1037/pspa0000049

Tibbetts, Y., Harackiewicz, J. M., Priniski, S. J., & Canning, E. A. (2016b). Broadening participation in the life sciences with social-psychological interventions. *CBE Life Sciences Education*, *15*(3), 1–10. https://doi.org/10.1187/cbe.16-01-0001

Timmermans, A. C., van der Werf, M. P. C. G., & Rubie-Davies, C. M. (2019). The interpersonal character of teacher expectations: The perceived teacher-student relationship as an antecedent of teachers' track recommendations. *Journal of School Psychology*, *73*, 114–130. https://doi.org/10.1016/j.jsp.2019.02.004

Tipton, E., Bryan, C. J., & Yeager, D. S. (2020). To change the world, behavioral intervention research will need to get serious about heterogeneity. Manuscript in Preparation. Retrieved from https://statmodeling.stat.columbia.edu/wp-content/uploads/2020/07/Heterogeneity-1-23-20-NHB.pdf

Turner, J. C. (2006). *Social influence*. Thomson Brooks/Cole Publishing Co.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, UK: Basil Blackwell Ltd.

van den Bergh, L., Denessen, E., Hornstra, L., Voeten, M., & Holland, R. W. (2010). The implicit prejudiced attitudes of teachers: Relations to teacher expectations and the ethnic achievement gap. *American Educational Research Journal*, *47*(2), 497–527. https://doi.org/10.3102/0002831209353594

Van Laar, C., Levin, S., & Sinclair, S. (2008). Social identity and personal identity stereotype threat: The case of affirmative action. *Basic and Applied Social Psychology*, *30*(4), 295–310. https://doi.org/10.1080/01973530802502200

Veldman, J., Meeussen, L., & van Laar, C. (2019). A social identity perspective on the social-class achievement gap: Academic and social adjustment in the transition to university. *Group Processes and Intergroup Relations*, *22*(3), 403–418. https://doi.org/10.1177/1368430218813442

Verkuyten, M. (2006). Multicultural recognition and ethnic minority rights: A social identity perspective. *European Review of Social Psychology*, *17*(1), 148–184. https://doi.org/10.1080/10463280600937418

Vogt, L. A., Jordan, C., & Tharp, R. G. (1987). Explaining school failure, producing school success: Two cases. *Anthropology & Education Quarterly*, *18*(4), 276–286. https://doi.org/10.1525/aeq.1987.18.4.04×0019s

von dem Knesebeck, O., Pattyn, E., & Bracke, P. (2011). Education and depressive symptoms in 22 European countries. *International Journal of Public Health*, *56*, 107–110. https://doi.org/10.1007/s00038-010-0202-z

von Hippel, P. T., Workman, J., & Downey, D. B. (2018). Inequality in reading and math skills forms mainly before kindergarten: A replication, and partial correction, of "are schools the great equalizer?" *Sociology of Education*, *91*(4), 323–357. https://doi.org/10.1177/0038040718801760

Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, *92*(1), 82–96. https://doi.org/10.1037/0022-3514.92.1.82

Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, *331*(6023), 1447–1451. https://doi.org/10.1126/science.1198364

Walton, G. M., Murphy, M. C., Logel, C., Yeager, D. S., Goyer, J. P., Brady, S. T., … Krol, N. (2019). Where and with whom does a brief social-belonging intervention raise college achievement? Manuscript in preparation.

Walton, G. M., & Spencer, S. J. (2009). Intellectual ability of negatively stereotyped students. *Psychological Science*, *20*(9), 1132–1139. https://doi.org/10.1111/j.1467-9280.2009.02417.x

Walton, G. M., Spencer, S. J., & Erman, S. (2013). Affirmative Meritocracy. *Social Issues and Policy Review*, *7*(1), 1–35. https://doi.org/10.1111/j.1751-2409.2012.01041.x

Walton, G. M., & Wilson, T. D. (2018). Wise interventions: Psychological remedies for social and personal problems. *Psychological Review*, *125*(5), 617–655. https://doi.org/10.1037/rev0000115

Walton, G. M., & Yeager, D. S. (2020). Seed and soil: Psychological affordances in contexts help to explain where wise interventions succeed or fail. *Current Directions in Psychological Science*, *29*(3), 219–226. https://doi.org/10.1177/0963721420904453

Wang, M. Te, & Sheikh-Khalil, S. (2014). Does parental involvement matter for student achievement and mental health in high school? *Child Development*, *85*(2), 610–625. https://doi.org/10.1111/cdev.12153

Warikoo, N. K., & Fuhr, C. (2014). Legitimating status: Perceptions of meritocracy and inequality among undergraduates at an elite British university. *British Educational Research Journal*, *40*(4), 699–717. https://doi.org/10.1002/berj.3108

Weale, S., Adams, R., & Bengtsson, H. (2017). Oxbridge becoming less diverse as richest gain 80% of offers. *The Guardian*. Retrieved from https://www.theguardian.com/education/2017/oct/19/oxbridge-becoming-less-diverse-as-richest-gain-80-of-offers

Weininger, E. B., Lareau, A., & Conley, D. (2015). What money doesn't buy: Class resources and children's participation in organized extracurricular activities. *Social Forces*, *94*(2), 479–503. https://doi.org/10.1093/sf/sov071

Wilder Research. (2014). *Nutrition and students' academic performance*. Retrieved from https://www.wilder.org/sites/default/files/imports/Cargill_lit_review_1-14.pdf

Williams, C. L., Hirschi, Q., Sublett, K. V., Hulleman, C. S., & Wilson, T. D. (2020). A brief social belonging intervention improves academic outcomes for minoritized high school students. *Motivation Science*. https://doi.org/10.1037/mot0000175

Williams Shanks, T. R., & Destin, M. (2009). Parental expectations and educational outcomes for young African American adults: Do household assets matter? *Race and Social Problems*, *1*(1), 27–35. https://doi.org/10.1007/s12552-009-9001-7

Woodcock, A., Hernandez, P. R., Estrada, M., & Schultz, P. W. (2012). The consequences of chronic stereotype threat: Domain disidentification and abandonment. *Journal of Personality and Social Psychology*, *103*(4), 635–664. https://doi.org/10.1037/a0029120

Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., … Dweck, C. S. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature*, *573*, 364–369. https://doi.org/10.1038/s41586-019-1466-y

Yeager, D. S., Purdie-Vaughns, V., Hooper, S. Y., & Cohen, G. L. (2017). Loss of institutional trust among racial and ethnic minority adolescents: A consequence of procedural injustice and a cause of life-span outcomes. *Child Development*, *88*(2), 658–676. https://doi.org/10.1111/cdev.12697

Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., Lee, H. Y., O'Brien, J., Flint, K., Roberts, A., Trott, J., Greene, D., Walton, G. M., & Dweck, C. S. (2016a). Using design thinking to improve psychological interventions: The case of the growth mindset during the transition to high school. *Journal of Educational Psychology*, *108*(3). https://doi.org/10.1007/s13398-014-0173-7.2

Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education: They're not magic. *Review of Educational Research*, *81*(2), 267–301. https://doi.org/10.3102/0034654311405999

Yeager, D. S., Walton, G. M., Brady, S. T., Akcinar, E. N., Paunesku, D., Keane, L., Kamentz, D., Ritter, G., Duckworth, A. L., Urstein, R., Gomez, E. M., Markus, H. R., Cohen, G. L., & Dweck, C. S. (2016b). Teaching a lay theory before college narrows achievement gaps at scale. *Proceedings of the National Academy of Sciences*, *113*(24), E3341–E3348. https://doi.org/10.1073/pnas.1524360113